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**Examining the Development of Sense of Coherence in the LGB College
Student Population and Its Relationship with Protecting Against
Distress and Suicidality**

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Dedication

This dissertation is dedicated to my parents, Scott and Marie Spear, and my grandmother, Helen Spear. To my parents, Scott and Marie Spear, your love, support, and encouragement has made all of this possible. I am forever grateful for your presence in my life, I would have been unable to achieve the dream that is represented by this dissertation without you. Thank you, mom and dad. To my grandmother, Helen Spear, you have served as a role model for me throughout my life, and in no small part you are one of the reasons I developed my passion to become a therapist and help others through my work. For this, and so much more, thank you.

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Examining the Development of Sense of Coherence in the LGB College Student Population and Its Relationship with Protecting Against Distress and Suicidality

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Past research has shown LGBTQ adolescents are at higher risk to experience distress and suicidal ideation, compared to their heterosexual peers (Haas et al., 2011, Marshal et al., 2011). However little research has specifically examined how the cisgender LGB college population experiences suicidality, or how this populations ‘sense of self’ may be related to experiences of suicidality while in the college environment. Using a national sampling of college students, this study found that members of the cisgender LGB college population experience increased risk for distress and suicidality compared to their cisgender heterosexual peers. This study also found that the protective sense of self factor Sense of Coherence, was lower among the cisgender LGB college population, and that the cisgender LGB population was entering the college environment having experienced a higher rate of negative early life experiences which were correlated with an increased risk for developing future distress and suicidality, compared to their cisgender heterosexual peers. These results add to our understanding of the rates of suicidal

distress and suicidality in the cisgender LGB college population, as well as help identify possible new area for future clinical intervention.

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CHAPTER ONE: INTRODUCTION

Currently, suicide ranks as the third leading cause of death among 15- to 24-year-olds, and the second among young adults aged 25 to 34 in the United States (Centers for Disease Control and Prevention [CDC], 2011a; Suicide Prevention Resource Center, 2004). This alarming statistic has presented a challenge to college counseling services as they endeavor to develop strategies to protect their students from this potentially avoidable problem. Although college student status seems to serve as a protective factor against suicide, with an estimated 6.3-7.5 deaths by suicide per 100,000 college students (Schwartz, 2011a), compared to approximately 15 per 100,000 for similarly age-matched peers (Schwartz 2011a; Pompili et al. 2011), this does not imply that suicidal ideation is not a major problem on college campuses. While the rates of death by suicide among individuals attending college are lower, a national college and university survey on rates of distress and suicidality found that roughly 18% of current undergraduates reported having seriously considered suicide at some point in their lives, and 6% had seriously considered suicide in the last year (Drum et al., 2009).

Instead of focusing exclusively on suicidal ideation and suicide death rates, it may be more useful to consider death by suicide as the end point on a broader continuum of distress and suicidality that college students' experiences (Drum et al., 2009). Distress in this context should be understood as thoughts, feelings, or actions that may be precursors to developing suicidality, but that have not yet reached a level of active suicidality. These might include thoughts of feeling overwhelmed, wanting current life events to end, wanting to escape, having morbid ruminations, or wanting to be dead without having any direct intention of taking one's own life (Brownson et al., 2016). The suicidality end of

this continuum can be understood to represent the wider range of suicidal thoughts and behaviors. This end includes suicidal ideation and rumination, suicidal attempts, and death by suicide.

College attendance, therefore, may be protecting only against the outcome of death by suicide and not the underlying buildup of distress that can lead to suicide. By viewing distress and suicidality as a continuum (Drum et al., 2009), it is possible to better understand the various levels of distress that may be present in the college population. This new framework affords the opportunity to create better models for understanding the development of suicidality and enables us to develop interventions that reach students before their distress develops into more life-threatening behaviors.

The reasons for why some students stay on the lower end of the distress and suicidality continuum while others develop suicidal ideation or attempt suicide may be in part traced to an acquired vulnerability to distress and suicide that some students bring with them to the college environment. In the current study, acquired vulnerability to distress and suicide is defined as having experienced life events previously associated with an increased risk for developing suicidality (Afifi et al., 2008; Brockie et al., 2015; Brodsky & Stanley, 2008; Fergusson et al., 2003; Herba et al., 2008; Isohookana et al., 2013; and Joiner et al., 2005a, 2005b). Although an acquired vulnerability to distress and suicidality alone does not necessitate the development of suicidality later in life, it should be seen as “wear and tear” on a person’s psychological resilience that causes the person to become more susceptible to suicidality when presented with life stressors.

The risk for distress and suicidality, and the acquired vulnerability to such states, are not evenly distributed throughout the population of college students. By understanding which sub-populations of college students are less protected against distress and suicidality, we can learn how to more effectively intervene with these groups, as well as with at-risk individuals. This study is specifically exploring the rates of acquired vulnerability to distress and suicide in the cisgender lesbian, gay, and bisexual (LGB) college student sub-population, in order to better our understanding of how these factors impact the LGB cisgender college population after they enter the college setting.

Russell and Joyner (2001) found that LGB adolescents were twice as likely as heterosexual students to have attempted suicide. A similar study (Garofalo, Wolf, Kessel, Palfrey, & DuRant, 1998) found that LGB high school students reported experiencing suicidal ideation and attempting suicide three times as often as their heterosexual peers. Other studies have shown LGB adolescents encounter causes of acquired vulnerability to distress and suicidality—such as experiencing physical or sexual abuse, harassment, rejection, prejudice by the wider community, and previous suicidality more frequently than their heterosexual peers (Centers for Disease Control and Prevention, 2011b; D’Augelli, Grossman, & Starks, 2006; Huebner, Rebhook, & Kegeles, 2004; Elze, 2003; Toomey et al., 2010, 2013; Van Wormer & McKinney, 2003). It is less clear, however, whether the risk for increased suicidal thoughts and acts is restricted to lesbian, gay, and bisexual (LGB) youth primarily in early adolescence or if an increased risk also persists into the college years.

Currently, most studies looking at LGB adolescents have drawn primarily from non-college student samples, and the LGB college population has been less researched (Russell et al., 2011). Existing research also tends to focus on suicidal ideation and attempts, not on the broader distress and suicidality continuum that may lead up to these attempts. Furthermore, research on LGB youth often includes subsets of the wider LGBTQ (LGB transgender and questioning) population into one single sexual orientation group, which may be over generalizing trends found in the transgender and questioning community onto the cisgender LGB population. Transgender and questioning adolescents in particular have been shown to possess rates of suicidal ideation and attempts that are higher than those in the LGB adolescent population (Clements-Nolle et al, 2006; Murphy, 2007). This may indicate that the mechanism for development of suicidality may be different in the transgender and questioning communities than in the cisgender LGB population. This highlights the importance of examining the young-adult LGB cisgender college population separately from transgender and questioning populations, in order to better understand how the LGB cisgender college-student population experiences the continuum of distress and suicidality. This study also provides data on whether LGB cisgender youth are, in fact, entering college with higher levels of acquired vulnerability to distress and suicide compared to their cisgender heterosexual peers.

Although we cannot prevent students from acquiring a vulnerability to distress and suicidality before they enter college, we may be able to learn how to bolster the protective psychological qualities that enable students to resist suicidal ideation, such as a healthy sense of self (Antonovsky, 1987). Such knowledge may be particularly important

for working with the LGB college-student population, since they experience many factors that contribute to an increase in acquired vulnerability to distress and suicidality, such as decreased family stability and increased rates of bullying and sexual assault (Balsam, Rothblum, & Beauchaine, 2005; D'Augelli, Grossman, & Starks, 2006; Huebner, Rebhook, & Kegeles, 2004), that also negatively impact the development of protective mental-health qualities. We must identify whether LGB cisgender students are entering college not only with a heightened vulnerability to distress but also with lower levels of protective qualities that might ameliorate that distress. An enhanced model for preventing suicidality—one that takes a comprehensive look at the different ways a person develops distress and suicidality—can help us to more effectively understand how individuals' positive sense of self can protect them from experiencing increased levels of distress and suicidality when exposed to negative events.

Currently, there are a number of different ways to describe one's sense of self in the literature, including self-efficacy, ego strength, and hardiness. All of these may serve as protective factors against future distress. One model (Joiner 2005b) that has been researched extensively describes how a person's sense of belonging functions as a protective mechanism against suicidality when the person experiences negative life events. This model has been explored thoroughly by Joiner (2002, 2005b) in his Interpersonal-Psychological Theory of Suicidal Behaviors. Research on belongingness has been fruitful in some samples, showing it protects against suicide ideation (Joiner et al, 2002; Van Orden 2008a,b; Van Orden & Joiner, 2009), but two recent studies (Hill & Pettit, 2012; Silvia et al., 2015) failed to find a positive correlation between a thwarted sense of belonging and suicidal ideation in an LGB college sample. Cero et al. (2015)

found that thwarted belongingness was not associated with suicidal ideation in the general college population. Furthermore, fluctuations in feelings of belongingness over time have been shown in the LGB population. McLaren (2010) found the coming-out process may temporarily depress sense of belongingness, so it may be less available as a protective quality exactly when LGB students need protection from feelings of distress and suicidality. What is needed, then, is a better model for promoting protective qualities of self that might shield LGB college students from distress and suicidality and also can be bolstered over time and are less likely to fluctuate during stressful life events.

An alternative model worth exploring is Antonovsky's (1979) sense of coherence (SOC) salutogenesis model of mental well-being. SOC has been shown to correlate with many of the protective qualities associated with sense of belonging (Brownson et al, 2016), but SOC may represent a stronger factor and a more global aspect of the self. While a person's SOC does not ensure they will be able to find a peer group to belong to, it has been shown to predict the quality of a person's interpersonal interactions (McCubbin, et al., 1993). SOC might also be particularly valuable to this research, since a study by Darling et al. (2007) found that many students were still developing their SOC during their college experience. Lastly, SOC is theorized to be a more stable model of self than sense of belonging (Antonovsky, 1998), and one that might be less likely to be deactivated during the coming-out process.

The theory of SOC is a key component of the wider framework of salutogenesis (Latin *salus* = health) developed by Aaron Antonovsky in his effort to better understand the origins of health (1979). The salutogenesis model focuses on understanding resources and strategies that promote resilience, active adaptation, and healthy behaviors

(Korotkov, 1998). Antonovsky writes, “sense of coherence is a holistic frame of mind, generally expressed by a persistent and stable feeling of confidence that one’s environment, internal and external, will be both predictable and reasonable” (1979). Supporting this view, several studies on SOC have found it to be associated with both physical health and emotional health (Eriksson & Lindstrom, 2005; Sanden-Eriksson, 2000; Svartvik et al., 2000). Antonovsky’s model describes three elements that contribute to overall SOC that he believes in turn predict how successfully a person will react to a stressor. These elements are 1) comprehensibility of the world, 2) manageability, and 3) meaningfulness. Although SOC influences our conscious beliefs, research has shown that SOC is a somewhat unconscious way of viewing the world and does not often enter into awareness at a level perceivable by the individual (Amirkhan and Greaves, 2003).

SOC is theorized to develop early in life through access to general resistance resources (GRRs), which can aid a person in resisting the harmful effects of stress. GRRs include family stability, higher income level, and social support, as well as other resources that provide support and security. A person’s view of the world and their sense of self form around early exposure to GRRs, which consequently can have an impact on a person’s SOC later in life. However, Antonovsky (1987) suggests that this quality of self is still modifiable during young adulthood. This highlights SOC as a possible target for interventions in the college population, since it is both still malleable during the college years and likely to maintain its protective quality after students leave the college environment.

Research on SOC as it operates in the college environment is currently limited. A study by Knowlden, Sharma, and Kanekar (2012) linked SOC to positive mental health outcomes in college students. Another study by Davidson, Feldman, and Margality (2012) has shown SOC can be increased in first year college students who participated in a targeted intervention. However, the most promising study on SOC and distress and suicidality has come from Brownson et al. (2016), in which a limited version of the SOC scale predicted distress and suicidality in the college population. These findings are currently being explored further in Brownson and Drum's current study "Understanding Student Distress and Academic Success", from which this dissertation is drawn from.

Little research, however, has examined SOC as it relates to the LGB population, and no research has examined SOC in an LGB cisgender college sample. This study was conducted in tandem with Brownson and Drum's current study in order to better understand how SOC operates specifically in the LGB cisgender sub-population and to expand our understanding of how this protective quality of self operates in the college environment.

This study investigates several questions through the collection of complex survey design data from a national sample of college students, in conjunction with the larger study "Understanding Student Distress and Academic Success" that was conducted by the National Research Consortium of College Counseling Centers in Higher Education. This study surveyed a representative sample of students from 18 four-year colleges and universities located throughout the United States. A goal of this current study is to determine whether LGB cisgender college students report more acquired vulnerability for distress and suicidality, as measured by the Adverse Childhood Experiences (ACE) scale

(CDC, 2009, 2010), compared to their heterosexual cisgender peers. This serves to establish whether the increased risk of suicidality found in the LGB adolescent population translates into similar trends in the LGB cisgender young-adult college population. In addition, this study examines whether LGB cisgender college students report experiencing more distress and suicidality over the last 12 months than their heterosexual cisgender peers. This is measured using the Distress and Suicidality Continuum (DSC) developed by Brownson et al. (2016), in addition to questions asking about past 12-month suicide ideation, and past 12-month history of suicide attempts, in order to capture a more comprehensive view of how distress and suicidality develop in the LGB cisgender college population.

The study also examines whether the self-reported levels of SOC for the LGB cisgender college population differ from those of the heterosexual cisgender college population. SOC levels will be measured using Antonovsky's 13-item SOC scale (1993). This study explores whether acquired vulnerability to distress and suicidality impacts the development of SOC differently for LGB and heterosexual cisgender students. The data was analyzed using ordinary least-squared (OLS) multiple regression in order to see whether the acquired vulnerability experienced by LGB cisgender college students affects their SOC development in a similar way as their heterosexual cisgender peers or if the relationship between acquired vulnerability and SOC changes based on sexual orientation.

This study also identifies what role SOC plays in protecting against distress and suicide, and how a student's sexual orientation may impact this relationship. While previous research (Brownson et al., 2016) has demonstrated a relationship between the

DSC and SOC, this study examines how sexual orientation may moderate the relationship between SOC and placement on the DSC. Additionally, this study further builds on the research of Brownson et al. (2016) by utilizing a more comprehensive measure of SOC, in the form of Antonovsky's 13-item SOC scale (1993). The data was analyzed using logistic regression.

Lastly, this study tested to see whether higher acquired vulnerability for distress and suicidality is correlated as strongly with recent experiences of distress and suicidality in the LGB cisgender college sub-population as compared to the heterosexual cisgender student population. This was explored by examining if acquired vulnerability to distress and suicidality impacts the development of recent distress and suicide differently for LGB and heterosexual cisgender students. Data was analyzed using an ordinary least-squared (OLS) multiple regression.

The overarching goal of this study was to better understand the unique factors affecting LGB cisgender college students that may contribute to increased distress and suicidality. Furthermore, this research examines how particular factors or personal resources may ameliorate the risk in this population. With a better understanding of these issues, college counseling facilities can design more effective population and individual interventions to reduce the prevalence of suicide on college campuses.

CHAPTER TWO: LITERATURE REVIEW

Overview

This literature review introduces the background research literature that has contributed to the development of this dissertation proposal. It begins with an overview of college suicidal ideation and distress, how students develop suicidal ideation, and the concept of distress and suicidal ideation as a continuum of thoughts and behaviors. It then discusses how the effects of acquired vulnerabilities to distress and suicidality develop and manifest themselves and how different life events may contribute to acquired vulnerability that can put a person at risk for exacerbated distress and suicidality when presented with negative life events. It then reviews different factors and models that have been shown to protect against future distress and suicidality, such as sense of coherence (SOC), and discusses how they might moderate the negative effects of acquired vulnerability to distress and suicidality. The chapter concludes by exploring the wider LGB community and how suicide, acquired vulnerabilities to distress and suicidality, and protective factors are currently understood to affect this population.

Defining Distress and Suicidality

For this study, “distress” means thoughts, feelings, or actions that may be precursors to suicidal ideation or attempts but that have not yet reached the level of active suicidality. These may include thoughts of feeling overwhelmed, wanting current life events to end, wanting to escape, having morbid ruminations, and wanting to be dead without having any direct intention of taking one’s own life. The presence of distress in this context does not necessarily indicate that a person will develop suicidality but instead

is seen as part of a continuum of distress and suicidality (Drum et al., 2009), which at its higher levels may develop into suicidal behaviors.

The term “suicidality” represents the wider range of suicidal thoughts and behaviors. This will include suicidal ideation and rumination, preparatory suicidal behaviors (e.g., collecting lethal means, creating plans, writing notes, practicing attempts), self-injurious behaviors building up to a suicide attempt, and suicidal attempts. Because suicidality is a general term for all suicide-related thoughts and behaviors, specific terms such as suicidal ideation, suicidal behaviors, and suicide attempts will be used when discussing those particular phenomena.

College Student Population

Today’s college student population is an increasingly diverse group composed of students from many different backgrounds and life experiences. A recent national survey by the American College Health Association (2012) found that roughly 24.4% of the students surveyed reported being a member of a racial or ethnic minority, upwards of 8.5% reported being an international student, and approximately 7.8% reported having a sexual orientation other than heterosexual. In addition, women now outnumber men in college enrollment, at approximately 56% of students identifying as female (IPEDS, 2015). When compared to the general population, the college population has an over representation of women and students of white/European descent, when controlling for age and compared to the wider US population (IPEDS, 2015; U.S. Department of Education, National Center for Education Statistics, 2016). However, it is projected that the demographic makeup of the college population will continue to shift, and the racial-ethnic disparity among admitted students is expected to continue decreasing (Ryan and

Bauman, 2016). This increasing diversity of the college demographic highlights the importance of understanding the unique mental-health needs of the various populations that comprise the student body in order to design interventions to serve the entire university community.

Suicide Among College Students

Since the late 1930s, mental-health professionals have been concerned about the prevalence of suicide among the college student population (Diehl & Shepard, 1939; Parrish, 1957; Raphael, Power, & Berridge, 1937). Parrish's study of Yale University students found that from 1920 to 1929, suicide was the third leading cause of death for students, following accidents and infectious diseases. By the 1950s, with the increased use of antibiotics to fight bacterial infections and vaccines to prevent lethal viral and bacterial infections, suicide rose to the second leading cause of death among students. Although Parrish's study is more than half a century old, suicide among young adults has remained a consistent trend (Schwartz, 2011). Currently, suicide ranks as the third leading cause of death among 15- to 24-year-olds and the second leading cause among those aged 25 to 34 (Centers for Disease Control and Prevention [CDC], 2010a, 2011a; Suicide Prevention Resource Center, 2004).

Early studies comparing the rates of death by suicide among college students and the larger non-college population observed that college students were at greater risk of death than their non-college peers (Parrish, 1957). However, over the past 40 years the demographics of the college student population has shifted to include more women and greater ethnic diversity. Possibly as a result of this shift, and due to the increase in the availability of mental health resources, studies since the 1980s have shown that college

students are now at a lower risk for death by suicide than the general college-age population (Hamilton, et al., 1983; Schwartz, 2006a, 2006b; Silverman et al., 1997). However, college students are still dying because of this preventable problem.

Producing an accurate measurement of deaths by suicide has been difficult for researchers (O'Carroll, 1989) due to the combination of inconsistent standards for recording deaths as suicide and the fact that deaths by suicide sometimes are innocently misreported as accidental deaths or are intentionally misreported because of the stigma associated with suicide (Rudd, 1989). Studies looking at death by suicide rates among college students have shown a wide range of predicted values from 5 to 50 per 100,000 per year (Lipschitz, 1990). However, the findings in this body of research are not generally comparable (Stack, 2011), because of the different research methods used and the varied demographic makeup of the universities sampled (Lipschitz, 1990).

In order to arrive at a more accurate picture of the rates of suicide in the college population, researchers have gradually moved to the use of a multi-university research sampling methodology, which allows for a more representative sample of college and universities, and better captures the diverse set of experiences that are present among students throughout the United States. Through such a methodology, Schwartz (2011a) has put the annual death by suicide rate for college students at 6.3–7.5 per 100,000 students. This observed rate of college student suicide is roughly 50% that of the population of similarly age-, gender-, and race-matched nonstudents, of whom 15 per every 100,000 die by suicide.

Schwartz has suggested that the lower rate of deaths by suicide in the college population may be due in part to policies that limit or forbid the presence of firearms on

college campuses (Schwartz, 2011). Most college campuses have restricted access to firearms for their students, especially in the dorms and residence halls under university control. This is of particular importance because the first two years of college are when students are most at risk for distress and suicidal ideation (Drum 2009) and when they are most likely to live on campus.

The college population has only one-ninth as many firearms readily available as the non-college population (Hepburn et al. 2007; Miller, Hemenway, & Wechsler, 2002). Firearms are the most common method used by males to die by suicide and the second most common among females. Not unexpectedly, when access to this most lethal means of suicide is restricted, suicide completion rates decline (Schwartz 2011). However, it is yet to be seen how actions taken by some state legislatures to increase the accessibility of firearms on college campuses (Texas, 2015) may impact the current protective quality that the college environment offers.

Even though research has shown that college attendance is a protective factor against dying by suicide, a recent survey of college counseling center directors found that there was a widely held perception that the percentage of students requiring mental-health support was on the rise (Gallagher, 2011). University counseling center staff members mirrored this viewpoint, reporting they had noticed an upsurge in the number of students seeking psychological services (Bushong, 2009). Research has also shown an increase in the severity of symptoms being reported by students (Gallagher, Gill, & Sysco, 2000).

Distress and Suicidality in the College Population

Although the current rate of deaths by suicide among college students is lower than that of the general population (Schwartz 2011; Pompili et al. 2011), this is not an

indication that the rates of distress and suicidality in the college population are necessarily lower or sufficiently acceptable. While there is no data available to directly compare suicidal ideation among the college and non-college populations, we now have data about the nature, prevalence, and severity of college students' experiences of distress and suicidality. A study by Drum et al. (2009) surveyed a national sample of college students and found roughly 6% of undergraduates reported that they had seriously considered suicide in the past year, while approximately 18% of undergraduates and around 15% of graduate students reported they had seriously considered suicide at some point in their lives. This same study also found roughly 8% of undergraduates and approximately 5% of graduate students had attempted suicide at least once during their lives. Another national sample of college students surveyed by the American College Health Association (2012) found similar rates of students who had seriously considered suicide.

These studies highlight the relative commonness of distress and suicidality in the college population. Although the rates of death by suicide are lower compared to rates among the general population, this appears to be mainly because of the efforts by college policymakers to limit student access to lethal means (Hepburn et al. 2007; Miller, Hemenway, & Wechsler, 2002). However, these same environmental factors are not necessarily reducing the rates of distress and suicidality experienced by students. This highlights the need to more broadly examine distress and suicidality beyond suicide attempts and death rates, as a wider continuum of thoughts, feelings, and behaviors that can develop into suicidal action.

Group Differences in Distress and Suicidality

When understanding distress and suicidality, it is important to recognize that subgroups within the total population exhibit distress and suicidality at very different rates (Stephenson, 2005). As previously noted, the college population has about half the rate of death by suicide as the non-college population of otherwise similar demographics (Silverman et al., 1997). Gender differences in suicidal ideation and attempts have also been observed. Research on gender differences and suicide has found men die by suicide nearly four times as often as women; however, women attempt suicide three to four times as often as men (Centers for Disease Control and Prevention, 2009b; Krug et al., 2002; Moscicki 1994). The primary reason for the gender difference in rates of death by suicide is the different methods of attempting suicide favored by each gender, with men preferring firearms and hanging, which are more lethal, and women favoring poisoning, which is less lethal (Callanan & Davis 2012). Several studies (Ellis & Lamis, 2007; Essau, Lewinsohn, Seeley, & Sasagawa, 2010; Kelly, Kelly, Brown, & Kelly, 1999; Rutz et al., 1995) have also shown men tend to express fewer depressive symptoms than women, yet depressed men have fewer protective factors for preventing fully developed suicidality. We can interpret these statistics to mean men experience less overall distress, but are more likely to progress further along the distress and suicidality continuum than women when distress does occur.

Current evidence shows conflicting reports on the existence of gender differences for suicidal distress in the college population. Some studies (Lamis & Lester, 2013; Ellis & Lamis 2007; Westfield et al., 2005) have found no significant gender differences in self-reported suicidal ideation in college students, while others (Stephenson et al., 2006)

have found gender differences in suicidal ideation. Stephenson et al. (2006) found students over the age of 25 were at greater risk for distress and suicide ideation than younger students. This same study found graduate women over the age of 25 were actually at greater risk of suicidal ideation than their non-student peers. These inconsistent findings on suicidal risk for students may reflect the inter-institutional variability of the samples collected. Differences among schools studied in terms of size, geographical location, average socioeconomic status, religious affiliation, alcohol and drug use on campus, and competitiveness among the student body all might affect the studies' findings (Haas 2003, Stephenson et al. 2005). Such variability highlights the need for further research on gender differences with regard to distress and suicidality among college students, as well as the importance of collecting large national samples of college students and not sampling only homogenous or nonrepresentative institutions.

Racial and cultural differences that affect a person's likelihood to experience suicidality (Stephenson, Belesis, & Balliet, 2005) have also been observed. Over the past decade, more deaths by suicide have occurred among non-Hispanic white Americans aged 15 to 24 years than among most other racial and ethnic groups (CDC, 2001, 2009b, 2012), with current estimates at 15.99 deaths per 100,000. Within the United States, African Americans have one of the lowest rates of death by suicide, measured between 1.9 per 100,000 (Silverman et al., 1997) and 6.1 per 100,000 (CDC, 2012). Rates of suicidality among Asian Americans and Hispanic Americans also fall substantially below the national average for Whites, at 6.5 deaths per 100,000 and 7.7 deaths per 100,000, respectively (CDC, 2012). American Indians/Alaska Natives, on the other hand, are at an increased risk for death by suicide, at 17.48 deaths per 100,000 (CDC, 2012).

Members of the lesbian, gay, bisexual, transgender, and questioning (LGBTQ) populations also experience suicide attempt rates significantly above those of the heterosexual population. LGBTQ individuals have been shown to experience suicide attempt rates twice as high as the heterosexual population (Blosnich and Bossarte, 2012; King et al., 2008; Silenzio et al., 2007), and transgender individuals have reported even higher rates, with one study finding approximately 50% of transgender individuals reported attempting suicide at some point in their lives (Clements-Nolle et al., 2006).

Intersecting identities have also been shown to play a role in suicidality within the lesbian, gay, and bisexual (LGB) college population. LGB specific racial and ethnic trends have been found in rates of distress and suicidality, when compared to wider college population. LGB individuals identifying as multiracial or other have been shown to have the highest rates of suicidality, followed by LGB students who identify as Asian, non-Hispanic White, Black, and LGB Latino students reporting the lowest levels of suicidality (Lytle, De Luca, & Blosnich, 2014). Another study on intersecting identities around lesbian, gay, bisexual, and questioning (LGBQ) identification and religion (Lytle, De Luca, Blosnich, and Brownson, 2014) found that Jewish and Christian LGBQ students reported less past 12-month suicide ideation and distress than their agnostic and atheist LGBQ counterparts. It should be noted for this particular study, college students were not assessed for their family of origin's belief system but reported only their religious affiliation at the time of survey.

Additional research on LGB distress and suicide will be explored in more detail later in this literature review. However, it is important to recognize that although college seems to serve as a protective factor for suicidality, it does not necessarily protect all

students equally. This highlights the need to further examine how distress and suicide develop within the different sub-populations in the greater college student community.

Theories of Development of Suicidality

Suicidality can be defined as thoughts, feelings, and behaviors that a person may have related to contemplating, preparing for, or attempting suicide. Several approaches to better understanding the occurrence of suicidality have been developed over the years. Some of the older approaches view suicidality as an “expression of mental illness” (Hendin, 1982) caused by the co-occurrence of other pathologies. Research supporting this view may cite findings related to how diagnoses of depression and schizophrenia in particular are linked to increases in suicidal risk (McGlashan, 1984; Rennie, 1939). However, understanding suicidal ideation as simply a symptom of depression or delusional thinking does not capture the unique nature of how suicidality develops. Studies examining depression have shown most depressed people do not attempt suicide. Furthermore, when thoughts of hopelessness are controlled for, depression ceases to be a predictor of suicidal behaviors (Bedrosian & Beck, 1979; Cole, 1988; Dyer & Kreitman, 1984; Petrie & Chamberlain, 1983).

Escape from Self Theory of Suicide

One prominent theory of suicidality is “escape theory,” which hypothesizes death by suicide is caused by the presence of negative self-perceptions (Baumeister, 1990). The Escape Theory model was originally proposed by Baechler (1979, 1980), who argued suicide could be viewed as a rational means of escaping a psychological problem: unmanageable negative self-perception. In his paper “Suicide as Escape from Self,” Baumeister (1990) expanded on this theory. He proposed suicide is the last of six steps

in an escape theory model. During the first step, individuals experience an outcome that falls far below their expected standards, because of either unrealistic expectations or a setback. The second stage commences when people internalize judgments, attributing the disappointing outcome to a negative characteristic of the self. In the third stage, people compare themselves with outside standards and increase their self-perception of inadequacy. The fourth stage involves increases in negative feelings due to these comparisons. The fifth stage comprises the onset of more traditional distressed and withdrawing behaviors. During this stage, people respond to their unease by trying to escape or reduce their negative thoughts by detaching from their thoughts and entering into a state of numbness. This method of escape, however, requires increasing levels of detachment to achieve the desired feelings of relief. The final stage in this model occurs when people deconstruct their mental state to the point where their normal inhibitions to suicidal actions have been compromised and their resistance to attempting suicide is lessened or eliminated (Baumeister, 1990).

Baumeister's model (1990) may be helpful in trying to construct a framework in which suicidality is not binary but progresses in a predictable sequence; that frame can then be used to create assessment tools to track the development and progression of suicidal ideation. Progression along the distress and suicidality continuum (Brownson et al., 2016), discussed later, is one possible tool. In addition, this model engages the question about what internal resources may protect an individual from progressing down the six steps in the escape theory model of suicide progression.

Interpersonal-Psychological Theory of Suicidal Behaviors

A different take on the development of suicidality comes from Joiner's "Interpersonal-Psychological Theory of Suicidal Behaviors" (2005b) model. In this model of suicidal behavior development, the potential for suicidal behaviors is impacted by three key areas: 1) a person's feelings of perceived burdensomeness, 2) feelings of low social belonging, and 3) the acquired capacity to actively engage in self-harming behaviors (Joiner, 2002, 2005b). According to this interpersonal-psychological theory, any of the three factors can impact individually the risk for experiencing suicidality, but it is through a combination of perceived burdensomeness and feelings of low social belonging that the risk for developing suicidal ideation increases. However, suicidal ideation alone is insufficient for someone to act on suicidal thoughts, and it is through an acquired acclimation to the pain and fear of self-harm that suicidal ideation can transform into a suicide attempt (Ribeiro & Joiner 2009).

According to Joiner (2005b), perceived burdensomeness occurs when people believe that their distress—or even simply their presence—is a burden on friends, family members, and/or society at large. The person then may start to believe removing herself will relieve the pressure she is putting on those around her (Joiner, 2002; Ribeiro & Joiner, 2009). Several studies support this part of Joiner's model, and research that looks at both college and clinical populations links feelings of perceived burdensomeness to increased rates of suicide attempts (Cero et al., 2015; Joiner et al., 2002; Van Orden, 2008a).

The second part of Joiner's theory involves feelings of thwarted belongingness. Here Joiner (2005b) postulates that as people become less socially connected and start to

believe that they lack the ability to sustain or create caring relationships, they move into a state of isolation and hopelessness (Cero et al., 2015; Conner et al. 2007; Joiner, 2005b; Van Orden, 2008b). Thwarted belongingness has not been consistently related to suicidal ideation when studied in the college population. Several studies (Joiner et al, 2002; Van Orden, 2008a, b; Van Orden & Joiner, 2009) have shown a link between thwarted belonging and suicidal ideation; however, a recent study by Cero et al. (2015) found while a connection between suicidal ideation and perceived burdensomeness did exist in the college population, thwarted belongingness was not associated with suicidal ideation. Two other studies looking specifically at sexual orientation and suicidal ideation in the college population (Hill & Pettit, 2012; Silvia et al., 2015) also failed to find a mediating relationship between thwarted belongingness and increases in suicidal ideation. These studies did affirm an association between perceived burdensomeness and an increase in suicidal ideation.

The last stage of Joiner's model involves the acquired capacity to engage in self-injurious behaviors (Joiner, 2005b). The theory postulates lethal self-injury is normally associated with much pain and fear, which usually serve to protect the individual experiencing suicidal ideation from acting on these feelings (Joiner, 2009). Risk for death by suicide occurs when a person gains the ability to tolerate the pain and fear associated with a suicide attempt. Such tolerance can occur through repeated exposure to painful or fearful situations; exposure to and familiarity with lethal means of attempting suicide, which reduce fear about the thought of death; and practicing suicidal behaviors and attempts (Joiner, 2005b). This may partially explain why past suicide attempts increase

the risk for more lethal future attempts (Joiner 2005a, 2005b; Brown, Beck, Steer, & Grisham, 2000), as people continue to desensitize themselves to the idea of suicide.

Comparing Interpersonal-Psychological and Escape Theories of Suicide

The later stages of Joiner's interpersonal-psychological theory of suicide may appear similar to the later stages of Baumeister's (1990) escape theory model, as they both address the presence of social isolation, but the models differ in several ways. First, in Baumeister's model, preexisting mental distress causes social isolation, and further isolation occurs as a person tries to numb herself to her pain and becomes increasingly socially avoidant and withdrawn over time. Although social avoidance may develop into a feedback loop that increases distress, Baumeister (1990) sees it as a symptom of that distress rather than as its root cause. Joiner's model, however, posits the decreased social connection as the cause of the suicidal distress (2005b). Where Baumeister's model indicates we should be on the lookout for socially disconnected students, Joiner's model opens up the possibility we might be able to prevent students' distress by helping them feel a sense of belongingness before they enter a period of stress. These differences are important because they raise the question of what role thwarted belongingness plays in the development of suicidality. If thwarted belongingness causes suicidal distress, then prevention strategies focused on increasing feelings of belongingness would be most appropriate. However, if thwarted belongingness is instead an outcome of the psychological distress experienced when someone has a negative sense of self, increasing the opportunity for social connection may be insufficient. In this case, the underlying maladaptive sense of self, which has made it harder for the person to feel connected to and be valued by others, has not been directly addressed. Thus this maladaptive sense of

self may make it more challenging for the person to feel socially invested or to develop feelings of belonging even when opportunities for social belonging are present.

Taken alone these theories are not sufficient for us to understand the full continuum of distress and suicidality that students may be experiencing. Instead, it would be useful to pair them with models that can account for vulnerability to distress and suicidality and with models that can accurately measure the protective factors, such as sense of self, that may decrease the odds a person will develop negative self-perceptions. Before we can do this, we first need to have a clearer understanding of the distress and suicidality that we are trying to prevent students from experiencing.

Distress and Suicidality Seen as a Continuum

Drum et al. (2009) offered students a wider range of options to describe their distress rather than the dichotomous (Yes/No) question of whether they had seriously considered suicide in the past 12 months traditionally asked in surveys on suicidality. The study's options mimicked the escape theory model (Baechler 1979, 1980), and the students reported lower levels of suicidal ideation than have been reported in similar college student samples (American College Health Association, 2009). However, the study also found that a greater number of students reported other types of distressed thinking. One possible explanation for these findings may be that the different options gave students the ability to more accurately report their distress than dichotomous questions do. For example, roughly 37% of undergraduates endorsed the statement "I wish this would all just end," while approximately 11% endorsed "I wish I was dead" (Drum et al., 2009).

Seeing distress and suicidal ideation on a continuum may provide a better model for understanding how these thoughts and feelings develop and function within the individual. The model may also serve as a new assessment tool that can be used to capture the progression toward withdrawal and hopelessness that Baumeister (1990), and in a more limited form, Baechler (1979, 1980), proposed in the escape theory model of suicidal development. In its national sample of college students, the American College Health Association (2012) study found similar trends of distressed thinking within the past 12 months, with roughly 86.1% of students agreeing they had “felt overwhelmed by all they had to do,” upwards of 81.4% reporting they “felt exhausted not from physical activity,” approximately 45.2% reporting they “felt things were hopeless,” and roughly 30.3% reporting they “felt so depressed it was difficult to function.” Only approximately 1.1% of the student responders reported having attempted suicide in the last 12 months (American College Health Association, 2012). By viewing distress and suicidal ideation as a continuum, it is possible to understand the process by which some people develop suicidal ideation when presented with life stressors while others do not.

Understanding Acquired Vulnerability for Distress and Suicidality

To understand why some people may be at a greater risk of progressing along the distress and suicidality continuum, we need to examine how pre-college life experiences can contribute to the development of vulnerability to the impact of future stressors. Preexisting vulnerabilities make a person more sensitive to the deleterious effects of stressors, which in turn results in more accumulated stress on the individual’s mind and body and increases the person’s likelihood of suicidality. One way of understanding acquired vulnerability to distress and suicidality is through the concept of allostatic load

(McEwen & Stellar, 1993). Allostatic load is the adaptation of a person's physiological and psychological systems to an external environment. When a person adapts to the stress caused by external events, it sometimes creates internal dysregulation, which negatively affects the person's internal systems. Thus, allostatic load represents a higher-order construct of the accumulated disruption of normal functioning (Lupien et al., 2006) and can be represented as acquired vulnerabilities to distress and suicidality.

Researchers have found multiple vulnerability factors that predict future suicidal ideation. Fergusson, Beautrais, and Horwood (2003) found that the accumulation of factors such as "family history of suicide, childhood sexual abuse, personality factors, peer affiliations and school success" contributed to the increased likelihood of future distress and suicidality. Conversely, the absence of such experiences in a person's life resulted in fewer future instances of distress (Fergusson et al., 2003). Herba et al.'s (2008) study on the effects of victimization showed that experiencing bullying, as well as family rejection at home, also increased a person's probability of suicidal ideation. Twenge, Baumeister, and Catanese (2003) showed social exclusion can create deconstructed states that also predict suicidal ideation. Research by Joiner et al. (2005a, 2005b) found having attempted suicide in the past creates additional risk for future suicidal ideation. This risk was found to be prominent even when other types of psychological distress (e.g., depression and anxiety) were accounted for. According to Joiner's (2009) model, a history of self-harm habituates a person to the taboo, fear, and pain associated with suicide and diminishes the perceived provocative nature of such behavior.

Study Definition of Acquired Vulnerability to Distress and Suicidality

Vulnerability can be defined as susceptibility to being wounded, or possessing the capacity of being hurt. In the current study, acquired vulnerability to distress and suicidality is defined as a state of increased risk for developing suicidality caused by life experiences that existing research has shown to cause long-term harm (Afifi et al., 2008; Brockie et al., 2015; Brodsky & Stanley, 2008; Fergusson et al., 2003; Herba et al., 2008; Isohookana et al., 2013; and Joiner et al., 2005a, 2005b). This study's definition of acquired vulnerability to distress and suicide includes questions encompassing three main areas: history of emotional/physical abuse, household dysfunction, and sexual abuse (Ford et al., 2014). Although the presence of acquired vulnerabilities to distress and suicidality does not solely predict the development of suicidality later in life, it should be viewed conceptually as “wear and tear” on a person's psychological resilience to suicidality. This erosion creates the possibility of one's being more susceptible to suicidality when presented with life stressors.

The survey questions assessing for preexisting acquired vulnerability to distress and suicide will be drawn from the Adverse Childhood Experiences (ACE) scale (CDC, 2009, 2010). This scale will serve as an approximation of students' acquired vulnerability to distress and suicide, assessing histories of adverse experiences that occurred before the age of 18 and that might represent hazards to a person's psychosocial and cognitive development (Ford et al., 2014; Rogosch et al., 2011; Leeb et al., 2011). The ACE scale includes questions that measure for unhealthy experiences in the childhood home environment, such as exposure to emotional abuse, physical abuse, sexual abuse, household-member mental illness (including suicidal behaviors), household-member

substance abuse, domestic violence, parental separation/divorce, and household-member incarceration. This scale has been shown to predict a wide range of long-term health problems and maladaptive behaviors in adults, such as heart disease, diabetes, lung cancer, substance abuse, nicotine addiction, psychopathology, and premature death (Anda et al., 2002; Edwards et al., 2003, Ford et al., 2014). Most interesting for this dissertation, the ACE scale has been shown to be predictive of suicidal ideation and attempts in both adolescent and adult populations (Afifi et al., 2008; Brockie et al., 2015; Brodsky & Stanley, 2008; Isohookana et al., 2013).

Qualities-of-Self Models of Mental Health

Since 1946, the World Health Organization (1946) has stated that to most effectively promote health and well-being, we must expand our understanding of health-promoting factors rather than focusing solely on distress and infirmity. This is because focusing on distress alone is insufficient to ameliorate the effects of distress and suicidality once they occur and also discourages preventive interventions. Instead, a more effective approach may be to augment the existing literature on distress and suicidality by studying how qualities of self-protection can be enhanced within individuals and how such qualities can be best used in specific at-risk communities.

The challenge now faced by researchers is how best to capture and quantify what “qualities of self” means for mental health. Currently, there are numerous ways to look at strength-based models of self, such as self-efficacy, hardiness, and ego strength. Two of the most researched models connected to distress and suicidality are belonging and, more recently, sense of coherence (SOC) (Antonovsky, 1979).

Sense of Belonging and Connectedness

The theories on the role of sense of belonging, sometimes conceptualized as “connectedness,” have been extensively researched with respect to their contributions to positive mental health and protection against manifestations of distress and suicidality (Hatcher & Stubbersfield, 2013). Since Maslow’s research (1969), belongingness has been identified as a basic human need that is necessary for effective psychological functioning. Baumeister and Leary (1995) also observed that the need to belong and experience interpersonal connections is a fundamental motivation intimately connected to a person’s well-being. Baumeister and Leary (1995) noted, “human beings have a pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships” (p. 497). In this view, the need for a positive sense of belonging serves as a demand-driven motivator for well-being in which a minimum level of regular interpersonal connection is required for a person to feel fulfilled. Elevated feelings of belonging and connectedness have been linked to several positive outcomes, such as good health (CDC, 2009b) and the reduction of suicidality (Van Orden, 2010). However, the ability of a person’s sense of belonging to reduce suicidality has been inconsistently observed in the literature (Cere et al., 2015; Hill & Pettit, 2012; Silvia et al., 2015), as discussed below. A study conducted by the Centers for Disease Control and Prevention (CDC) found that connectedness was a strong protective factor for decreasing substance use, school absenteeism, early sexual initiation, interpersonal violence, risk of unintentional injury, emotional distress, disordered eating, and suicidal ideation and attempts (CDC, 2009a). Several studies have also shown the

importance of one's sense of belonging as a predictor of positive college outcomes (Allen et al., 2008; Morrow & Ackermann, 2012).

Although sense of belonging is an important factor to consider in defining a sense of self that can insulate against increased distress and suicidality, the concept of belonging as a model as a primary protective quality of self may have limitations. For example, a study by McCallum and McLaren (2011) found that for the LGB adult population, fostering an increased sense of belonging had only indirect benefits on the mental health of this community. Additionally, two other studies (Hill & Pettit, 2012; Silvia et al., 2015) failed to find a positive connection between a college student's thwarted sense of belonging and suicidal ideation in an LGB sample. Furthermore, a study by Cere et al. (2015) found thwarted belongingness was not associated with increased suicidal ideation in the general college population. These studies suggest although sense of belonging is important to overall wellbeing, it may be an unreliable target for future interventions to reduce distress and suicidality. Furthering this point, in a national sampling of college students, Brownson et al. (2016) found although sense of connectedness/belonging was a protective quality for reducing distress and suicidality, this protective quality was strongly associated with, and better accounted for, by a person's sense of coherence (SOC). This may be because sense of belongingness and ability to connect with others are strongly influenced by higher-level factors, such as overall sense of self. Viewing belongingness in this way, we might expect students who have negative senses of self to struggle feeling confident in their ability to build connections with others, even if opportunities to make connections are present. Therefore, SOC and other models that look more directly at a person's overall sense of

self may be better focuses for efforts to find a more reliable factor to promote well-being and protect people from the deleterious effects of stress.

Sense of Coherence (SOC)

The theory of SOC comes from the wider framework of salutogenics (Latin *salus* = health) developed by Aaron Antonovsky in his desire to better understand the origins of health (Antonovsky 1979). The salutogenic model focuses on understanding resources and strategies that are present within an individual that are restorative in nature and enable successful coping with potentially harmful life events (Korotkov, 1998). A key component of this theory is the concept of SOC.

Antonovsky states that “sense of coherence is a holistic frame of mind, generally expressed by a persistent and stable feeling of confidence that one’s environment, internal and external, will be both predictable and reasonable” (Antonovsky, 1979).

Antonovsky’s SOC model describes three elements that contribute to one’s overall SOC that he believes in turn predicts how successfully a person will react to a stressor. These elements are 1) comprehensibility of the world, 2) manageability, and 3) meaningfulness. The first component of Antonovsky’s model is a personal sense of the external world’s comprehensibility. Comprehension is largely cognitive and reflects the degree to which a person grasps the situation at hand (Antonovsky, 1998). The second component, manageability, is the individual’s perception of her ability to appropriately utilize available resources to manage a given problem. Manageability has sometimes been equated with self-efficacy, which can be defined as an individual’s belief in his capacity to meet his own set goals. While the two are similar, Antonovksy (1998) asserts self-efficacy is an important contributor to one’s sense of manageability. The third and,

according to Antonovsky, most important component of the SOC model is meaningfulness, which encompasses a person's motivation to cope with life and her ability to make sense of her experiences emotionally (Antonovsky, 1998). Meaningfulness is also influenced by comprehensibility and manageability. Although SOC influences our conscious beliefs, research has shown (Amirkhan and Greaves, 2003) SOC is a somewhat unconscious way of viewing the world and does not often enter into awareness at a level the individual can perceive.

SOC is theorized to develop early in life through access to general resistance resources (GRRs), which can aid a person in resisting the harmful effects of stress. In their analysis of Antonovsky's SOC model, Griffiths et al (2011) define GRRs as "physical (e.g., a strong physique, strong immune system, genetic strengths), artifactual (e.g., money, food, power), cognitive (e.g., intelligence, education, adaptive strategies for coping), emotional (e.g., emotional intelligence), social (e.g., support from friends and/or family), or macrosocial (e.g., culture and shared belief systems)" resources that influence a person's ability to successfully cope with life stressors. The presence of more GRRs early in life helps a person form a more fully developed SOC, by providing support for managing challenging early life events. Research on the stability of SOC has shown it develops gradually and stabilizes around age 30 (Antonovsky, 1998; Eriksson & Lindstrom, 2007; Hochwalder & Forsell, 2011). However, one study by Hakanen, Feldt, and Leskinen (2007) found the construct of SOC was more stable among higher SOC individuals than among lower SOC individuals, suggesting that when SOC was more developed, it was more likely to stay developed.

A study by Darling et al. (2007) found the SOC of many college students was still in development during their college experience and was influenced by the quality of their interpersonal relationships, in addition to how well students were able to manage stressors. These findings are particularly relevant because they show if SOC can be better understood, it may be possible to find ways to nurture and promote it in college students through specific population and clinical interventions. Two intervention studies that have tried to increase SOC in samples representing a wide variety of mental health concerns found it was possible to increase both SOC and coping abilities (Langeland et al., 2006, 2007).

Although SOC does not predict how people will behave in particular situations, it does affect the quality of a person's interactions (McCubbin, et al., 1993). Research by McCubbin et al. (1993) has shown the more stable a person's SOC is, the better she will be able to adequately cope with ever-present stressors. Someone with greater SOC experiences more feelings of confidence, resulting in an increased sense of control over life events, whereas a person with lower SOC more often views negative life events as a reflection of him- or herself (Fiorentino & Pomazal, 1998).

Several studies of SOC have associated it with physical as well as emotional health. Sanden-Eriksson (2000) found the higher a patient's estimation of their physical health, the higher their SOC scores were and the lower their chances of having physical disorders. Svartvik and colleagues (2000) reported similar findings when looking at SOC and physical health. In a study by Surtees et al. (2003) on physical health, a strong SOC was found to be associated with an approximately 30% reduction in mortality in patients

diagnosed with cardiovascular disease and cancer (independent of age, sex, and presence of other chronic disease).

SOC has also been connected with mental health. Although Eriksson and colleagues found SOC alone is not synonymous with mental health, SOC is strongly related to a person's mental well-being (Eriksson & Lindstrom, 2005). A study by Brownson et al. (2016) examining distress and suicidality in the college population found SOC had a protective effect, reducing distress and suicidality. This study also found while SOC and sense of belonging/connectedness both showed a protective effect against distress and suicidality, SOC accounted for most of that effect. This finding lends weight to the value of further exploring SOC and how it may be used to reduce distress and suicidality in groups, such as the LGB community, at a greater risk for having acquired vulnerability to distress and suicidality.

The Lesbian, Gay, and Bisexual, Transgender, Questioning (LGBTQ) Population

This section of the paper identifies special issues in the LGBTQ population. It discusses the larger LGBTQ community and then offers a rationale for not examining the transgender and questioning sub-populations in its analysis of the LGB cisgender college population. Next, this section explores how distress and suicidality, acquired vulnerability to distress and suicidality, and SOC are understood to operate within the larger LGB population. This overview then leads into the research questions addressed by the current study.

The World Health Organization has identified the LGBTQ population as being at an elevated risk for developing distress and suicidality (World Health Organization, 2006). However, it is important to note this population is diverse, including people from

all races, ethnicities, ages, genders, and socioeconomic backgrounds. In fact, the LGB label is rather simplistic. Identifying as gay, lesbian, or bisexual are only a few of the ways for people to specify their sexual orientations. A person is a complex interaction of individual factors, including biological sex, gender identity, romantic attachment preference, sexual behaviors, gender roles, and sexual orientation. These variables comprise a continuum of behaviors, preferences, categories of self-identification, and biological differences. Furthermore, some individuals change the way they self-identify over time.

For the purposes of this study, however, we will rely on college students' self-reports of sexual orientation at the time of the survey, which is consistent with how other large national samples of college students have measured sexual orientation. In a recent national sample of college students (Drum et al. 2009), roughly 92% of students reported their sexual orientation as heterosexual, 3.4% as bisexual, 2.5% as gay/lesbian, and 1% as questioning. This appears to be similar to the national average, which estimates that 1% to 4% of males and females consider their sexual orientation to be something other than heterosexual (Ellis, 1996; Ellis 2007; Laumann, Gagnon, Michael, & Michaels, 1994).

The Transgender and Questioning Population

This study was designed to look at only the lesbian, gay, and bisexual cisgender student sample, and does not include transgender and questioning students in the analysis of data. However, data was collected on these students during the survey and may be used in future analyses. This study recognizes the importance of the transgender and questioning student population as well as of understanding these communities, particularly with respect to college suicide prevention. The decision to not include

transgender and questioning groups in the current study was made because existing research has shown the transgender and questioning population may possess a risk for distress and suicidal ideation significantly higher even than that of the LGB cisgender population (Clements-Nolle et al. 2006; Goldblum et al. 2012, Murphy, 2007). Including this population would have run the risk of inflating any findings due by the increased levels of distress commonly observed in the questioning and transgender population. Therefore, in order to obtain the most accurate understanding of the LGB cisgender student population, the LGB cisgender sample is studied here as a distinct group that differs from transgender and questioning students.

LGB and Distress and Suicidality

In their study on adolescent sexual orientation and suicide risk, Russell and Joyner (2001) found LGB adolescents were twice as likely to attempt suicide as their heterosexual peers. Similar studies (Garofalo, et al., 1998; King et al., 2008) have found LGB adolescents to be two to three times more likely to have experienced suicidal ideation and attempts compared to their heterosexual peers, even when controlling for ethnicity, gender, and age (Silenzio, Pena, Duberstein, Cerel, & Knox, 2007). A Boston school survey of 13- to 19-year-olds found a similar trend, showing that LGB students were three-and-a-half times more likely to report engaging in self-harming behaviors and five times more likely to report suicidal ideation than their heterosexual peers (Almeida et al., 2009). Studies examining adolescent mental health have also shown LGB adolescents report higher levels of depression than their peer group as a whole (Galliher, Rostosky, & Hughes, 2004; Russell & Joyner, 2001).

Several studies in the last decade have looked more directly at suicidal behaviors in the LGB college population. The National College Health Assessment (NCHA) data examining risk factors associated with college student suicide found having a sexual orientation other than heterosexual was connected with an increased risk for suicide (Kisch, Leino, & Silverman, 2005). Two additional studies, one by Hill and Pettit (2012) and the other by Silvia, Chu, Monahan, and Joiner (2015), also found a statistically significant increase in suicidal ideation for the LGB college student sub-population, compared to their heterosexual peers. These two studies examined the LGB college sub-population using Joiner's Interpersonal-Psychological Theory of Suicidal Behaviors (Joiner 2005b), and each observed that increased feelings of perceived burdensomeness appeared to account for the elevated rates of suicidal ideation in the LGB college sub-population. However, thwarted belongingness, a key factor in Joiner's model (2005b), did not appear to be connected to an increased risk for suicidal ideation for the LGB sub-population.

In a study using the 2009 National College Health Assessment survey, Lytle, De Luca, and Blosnich (2014) examined these trends further and added the assessment of suicide attempts, not just ideation, to their model. This study found LGB college students were significantly more likely to report experiencing suicidal ideation and to have made a suicide attempt compared to their heterosexual peers. Although these studies provide some understanding of the rates of suicidal behaviors, such as suicidal ideation and attempts, in the college population, we know much less about the wider continuum of non-suicidal distress that may lead up to suicidality in the LGB college sub-population.

The only research currently available on how the continuum of distress and suicidality affects the lives of the LGB population comes from a study by Lytle, De Luca, Blosnich, and Brownson (2014), in which they examined the association of racial/ethnic identities and religious affiliation with suicidal ideation in the LGBQ community. This study found the LGBQ sub-population showed an increased rate of distress at all points on an abbreviated version of the distress and suicidality continuum. Despite this finding, the study leaves room to build on its results in a few key ways. First, the model of distress and suicidality in this study was limited in its scope and did not include the full continuum of distress questions later developed for the distress and suicidality scale by Brownson et al. (2016). Furthermore, the Lytle et al. study (2014) included the sub-population of questioning students in its combined sample of sexual minorities. This could possibly have inflated the rates of distress and suicidality found in their sample, since previous research has shown that questioning students have higher rates of suicidal ideation and attempts compared to their LGB peers (Murphy, 2007). Although questioning students are deserving of attention, they may represent a conceptually different entity and may add uncertainty to any exploration of the rates of distress and suicidality in the LGB sub-population.

This dissertation builds on the work done by Lytle et al. (2014) by looking at the LGB cisgender sub-population as an entity distinct from the questioning sub-population, as well as the transgender population. It examines the LGB cisgender sub-population using the full distress and suicidality continuum developed by Brownson et al. (2016), in order to more precisely understand how distress and suicidal behaviors progress in the LGB cisgender sub-population.

LGB and Acquired Vulnerability to Distress and Suicidality

LGB students are likely to enter college with more preexisting acquired vulnerabilities to distress and suicide, as defined above, compared to their heterosexual peers. Studies have shown LGB youth are more often victims of physical and verbal abuse, harassment, rejection, and prejudice by the wider community (D'Augelli, Grossman, & Starks, 2006; Huebner, Rebhook, & Kegeles, 2004), and this happens in both the school environment (Elze, 2003; Van Wormer & McKinney, 2003) and the home environment (Balsam, Rothblum, & Beauchaine, 2005). LGB youth are also more likely to suffer bullying (Garofalo, et al., 1998), with boys experiencing more victimization than girls (Toomey et al., 2013). This helps explain the higher levels of depression and suicidality in the LGB community; indeed, studies have shown a strong link between experienced homophobia and these negative outcomes (Lewis, et al., 2003; Szymanski, Chung, & Balsam, 2001; Toomey et al., 2013). Experiencing homophobia results in social rejection, stigmatization, alienation, and social isolation among LGB youth, which in turn contribute to higher depression levels (Gonsiorek, 1993; Olson & King, 1995). In fact, some studies have shown there may be no increased risk for suicidal ideation inherent in the LGB population beyond the risk conferred by these associated factors (Muehrer, 1995).

Research specifically looking at the LGB adult population has shown that compared to heterosexuals, bisexual persons tended to report significantly more adverse childhood experiences across all categories and gays/lesbians had significantly higher prevalence of all adverse childhood experiences, with the exception of parental separation/divorce (Anderson & Blosnich, 2013; Blosnich & Anderson, 2015). LGB

adults were also twice as likely to have experienced physical, emotional, and sexual abuse as their heterosexual counterparts. Bisexual individuals were at particular risk for having experienced sexual abuse and reported experiencing this type of abuse three times more often than their heterosexual peers (Anderson & Blosnich, 2013). This research provides additional evidence that these increased rates of victimization and abuse contribute to the increase in LGB distress and suicidality and is evidence against the view that sexual orientation itself causes poor mental health (Blosnich & Anderson, 2015). However, no research has been conducted yet using the ACE scale in the LGB cisgender college population. It is unclear whether the trend observed in the wider LGB population of increased scores on the ACE scale correlating to increased distress and suicidality are also present in the LGB cisgender college sub-population.

College mental-health professionals, however, may be less interested in how LGB students acquire their vulnerability to distress and suicidality than in how this acquired vulnerability can be kept from producing future distress and suicidality. It is also important to note that even among people who experience life events shown to increase the risk for suicidal ideation, many will not experience suicidal distress or may experience less distress than others in a similar situation. Relatively little research has been done to uncover factors that protect the large majority of LGB cisgender college students from developing distress and suicidality. This led Hass et al. (2010) to recommend more research on “factors that protect against or mitigate the impact of suicide risk factors in the large majority of LGBT people and factors that contribute to the development of resiliency in each of these populations.” With this better understanding of protective factors, we can work to reduce the risk of distress and suicide

for the entire LGB student population, including those who enter college with higher levels of acquired vulnerability to distress and suicidality.

Sense of Coherence (SOC) and the LGB College Population

There is little research on how SOC develops and operates within the LGB cisgender college population. Exploring this area further is important to understanding how SOC develops in all individuals and how it impacts the acquired vulnerability to distress and suicidality observed in the wider LGB adolescent population. It is also important to examine how SOC impacts and operates in the LGB cisgender college population separately; we cannot assume observations made in the heterosexual community will hold true for the LGB cisgender college population. Research on other traditional strength-based models of mental health, such as sense of belonging and connectedness, has shown they operate in unexpected ways in the LGB population. For example, studies of ethnic minority mental-health models have shown having a community to identify with, as well as a higher level of self-identification with the community, serves as a protective factor for minority groups (Range et al. 1999). Therefore, by Baumeister and Leary's (1995) logic, LGB students involved with the LGB community should experience some level of protection against distress. However, McCallum and McLaren (2010) found an LGB adolescent's level of connectedness to the LGB community only indirectly protected that person from depression; it was the level of belonging and connection to the wider community (including heterosexuals) that protected strongly against distress. These findings show the LGB cisgender community may have its own unique interactions with known protective factors. This is worth

exploring so college mental-health workers can understand which strength-based interventions will work most effectively with this community.

Purpose of the Current Study

The current study was designed to investigate several questions through the collection of complex survey design data from a national sample of college students, in conjunction with the larger study “Understanding Student Distress and Academic Successes” that was conducted by the National Research Consortium of College Counseling Centers in Higher Education. This study surveyed a representative sample of students from 18 four-year colleges and universities located throughout the United States. The goal was to determine whether LGB cisgender college students report more acquired vulnerability for distress and suicidality, as measured by the Adverse Childhood Experiences (ACE) scale (CDC, 2009, 2010), compared to their heterosexual cisgender peers. This would serve to establish whether the increased risk of suicidality found in the LGB adolescent population translates into similar trends in the LGB cisgender college population. In addition, this study examined whether LGB cisgender college students report experiencing more distress and suicidality over the last 12 months than their heterosexual cisgender peers. This was measured using the Distress and Suicidality Continuum (DSC) developed by Brownson et al. (2016), in addition to questions asking about past 12-month suicide ideation, and past 12-month history of suicide attempts, in order to capture a more comprehensive view of how distress and suicidality develop in the LGB cisgender college population.

This study also explored several aspects of SOC within the LGB cisgender college student population and used Antonovsky’s 13-item SOC scale (1993) to measure

levels of this sense of self factor. The study examined if the self-reported levels of SOC for the LGB cisgender college population differ from those of the heterosexual cisgender college population. Additionally, the study considered whether acquired vulnerability to distress and suicidality impacts the development of SOC differently for LGB and heterosexual cisgender students. Statistical analysis was conducted to see if the acquired vulnerability experienced by LGB cisgender college students affects their SOC development in a similar way as their heterosexual cisgender peers, or if the relationship between acquired vulnerability and SOC changes based on sexual orientation.

This study also sought to identify the role SOC plays in protecting against distress and suicide, as well as how a student's sexual orientation may impact this relationship. While previous research (Brownson et al. 2016) has demonstrated a relationship between the DSC and SOC, this study explored how sexual orientation moderates the relationship between SOC and placement on the DSC. This study builds on the research of Brownson et al. (2016) by utilizing a more comprehensive measure of SOC, in the form of Antonovsky's 13-item SOC scale (1993).

Lastly, this study tested to see whether higher acquired vulnerability for distress and suicidality is correlated as strongly with recent experiences of distress and suicidality in the LGB cisgender college sub-population as compared to the heterosexual student population. This was explored by examining if acquired vulnerability to distress and suicidality impacts the development of recent distress and suicide differently for LGB and heterosexual cisgender students.

The overarching goal of this study was to better understand the unique factors LGB cisgender college students face that could contribute to increased distress and

suicidality. Furthermore, this research sought to examine how particular factors or personal resources may ameliorate the risk in this population. With a better understanding of these issues, college counseling facilities can design more effective population and individual interventions to reduce the prevalence of suicide on college campuses.

Research Questions

Research Question 1. Controlling for gender, race/ethnicity, and age, do LGB cisgender college students report greater acquired vulnerability to distress and suicidality compared to heterosexual cisgender college students?

Hypothesis 1. The LGB cisgender college population will have an increased rate of acquired vulnerability to distress and suicidality compared to the heterosexual cisgender college student population.

Rationale 1. Previous literature on acquired vulnerability for distress and suicidality has often over-generalized findings observed in the LGBTQ adolescent community as representative of the LGB cisgender college sub-population (Garofalo, Wolf, Kessel, Palfrey, & DuRant, 1998; Russell & Toomey, 2010; Haas et al., 2011; King et al., 2008). Question 1 considered only the LGB cisgender college sub-population in order to learn its acquired rates of vulnerability to distress and suicidality and to see if those rates are indeed higher than the rates for the heterosexual college population. If the rates are higher in LGB cisgender students, this may mean they are entering college with an increased risk of experiencing more severe distress and suicidality when presented with life challenges compared to the heterosexual cisgender college population.

Research Question 2a. Controlling for gender, race/ethnicity, and age, do LGB cisgender college students report increased rates of past-12-month distress and suicidality compared to heterosexual cisgender college students?

Hypothesis 2a. This study will find an increased risk for past-12-month distress and suicidality in LGB cisgender college students compared to the heterosexual cisgender college community.

Rationale 2a. This question builds on the previous question, to determine whether the hypothesized greater acquired vulnerability to distress and suicidality predicted in Question 1 would translate into increased rates of distress and suicidality experienced in the past 12 months. This question was explored because Question 1 may capture increased acquired vulnerability to distress and suicidality that operates only during the pre-college years, when the LGB adolescent population could be more likely to experience trauma induced by events related to their sexual orientation (Garofalo, et al., 1998). It is important to understand whether any increased distress and suicidality in LGB adolescents is limited to earlier life periods and is not reflective of the LGB cisgender college population's current levels of vulnerability.

Research Question 2b. Controlling for gender, race/ethnicity, and age, do LGB cisgender college students report increased rates of past-12-month suicide ideation compared to heterosexual cisgender college students?

Hypothesis 2b. This study expects to find an increased risk for past-12-month suicide ideation in LGB cisgender college student population compared to the heterosexual cisgender college community.

Rational 2b. Building on the previous question, this question seeks to determine if found differences between heterosexual and LGB cisgender students along the Distress and Suicide Continuum also translate into differences in experienced rates of suicide ideation. Based on past research (Haas et al., 2011, Marshal et al., 2011) it is expected that LGB cisgender individuals should have increased rates of suicide ideation, assuming that the college LGB cisgender sub-population is similar in trends to the wider adolescent LGB population.

Research Question 2c. Controlling for gender, race/ethnicity, and age, do LGB cisgender college students report increased rates of past-12-month suicide attempts compared to heterosexual cisgender college students?

Hypothesis 2c. This study will find an increased risk for past-12-month suicide attempts in LGB cisgender college students compared to the heterosexual cisgender college community.

Rational 2c. Continuing on the expectation from question 2a and 2b. It was expected that an increase in past 12-month experiences of Distress and Suicide, as measured on the Distress and Suicide Continuum, and increased rates of past 12 month suicide ideation, will translate into an increase in actually suicide attempts for the LGB cisgender college population, compared to their heterosexual cisgender peers.

Research Question 3. Controlling for gender, race/ethnicity, and age, do LGB cisgender college students report lower levels of sense of coherence compared to heterosexual cisgender students?

Hypothesis 3. LGB cisgender college students will show a lower average level of sense of coherence compared to their heterosexual cisgender college peers.

Rationale 3. This question was asked because existing research has not considered SOC in the LGB cisgender college population as a distinct group. It is important for college mental-health professionals to know whether SOC is less present in the LGB cisgender college population because of its protective aspects. Research on SOC has linked the presence of general resistance resources, such as early family stability, to the development of SOC (Antonovsky, 1987). Research has also found that LGB individuals are at increased risk of having experienced early family-life instability and disruption (Balsam, Rothblum, & Beauchaine, 2005). Therefore, it is important to explore whether LGB cisgender college students do have lower SOC compared to heterosexual cisgender college students. If the LGB cisgender college population has lower SOC, it could provide an area for intervention by college mental-health professionals.

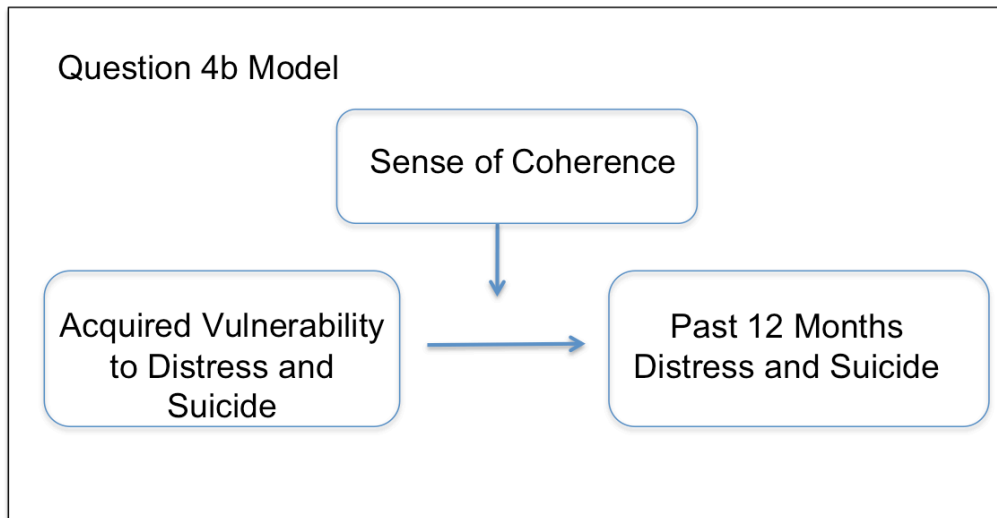
Research Question 4a. Controlling for sexual orientation, gender, race/ethnicity, and age, is there a relationship between acquired vulnerability to distress and suicidality and a student's placement on the Distress and Suicide Continuum?

Hypothesis 4a. This study expects to find a relationship where an increase on the ACE scale predicts higher scores on the Distress and Suicide Continuum scale.

Rationale 4a. This study assumed that the Adverse Childhood Experiences (ACE) scale (CDC, 2009, 2010) used in this study is a valid measure for increased vulnerability for future distress and suicide. This question seeks to demonstrate that the measure selected to capture a student's Acquired Vulnerability for Distress and Suicide, as captured in the ACE scale, is in fact predictive of a student's placement along the Distress and Suicide Continuum.

Research Question 4b. Controlling for gender, race/ethnicity, and age, is the relationship between acquired vulnerability for distress and suicidality and a student's placement over the last 12 months along the Distress and Suicide Continuum moderated by Sense of Coherence?

Figure 1. Proposed Model for Research Question 4b.

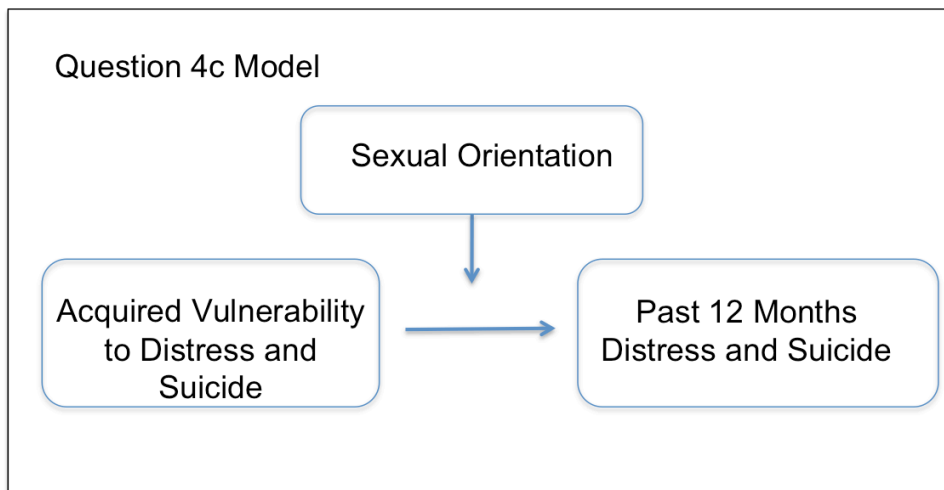


Hypothesis 4b. This study anticipates that a student's Sense of Coherence will impact the relationship between their acquired vulnerability for distress and suicide, and their reported placement over the past 12 months along the Distress and Suicide Continuum. In particular, this study anticipates that as Sense of Coherence increases there will be a decreasing positive relationship observed between the variables acquired vulnerability for distress and suicide and current past 12-month placement on the Distress and Suicide Continuum. Because of this, students who report lower on the Sense of Coherence scale will show a stronger relationship between the variables acquired vulnerability for distress and suicide and current past 12-month placement on the Distress and Suicide Continuum, when compared to students who report higher scores on the Sense of Coherence scale.

Rational 4b. This study theorizes that higher levels of Sense of Coherence may decrease the detrimental impact that Acquired Vulnerability to Distress and Suicide has on someone's current levels of suicidal distress, as it represents that they have coping resources to manage the distressing events they experienced as a child. However, when Sense of Coherence is less developed, this may in turn exacerbate the impact that early trauma had on the individual, and may then be correlated with greater likelihood to be experiencing current suicidal distress.

Research Question 4c. Controlling for gender, race/ethnicity, and age, is the relationship between acquired vulnerability for distress and suicidality and a student's placement over the last 12 months along the Distress and Suicide Continuum moderated by a college student's sexual orientation?

Figure 2. Proposed Model for Research Question 4c



Hypothesis 4c. This study anticipates that a student's sexual orientation will impact the relationship between their acquired vulnerability for distress and suicide, and their reported placement over the past 12 months along the Distress and Suicide Continuum. In particular, this study anticipates that the LGB cisgender student sample

will demonstrate a larger positive correlation in the observed relationship between acquired vulnerability for distress and suicide and past 12-month placement on the Distress and Suicide Continuum, when compared to the cisgender heterosexual student sample.

Rational 4c. This study theorizes that cisgender LGB students may experience an increased vulnerability to the impact of Adverse Childhood Experiences, which because of experiences of bullying, homophobia, and cultural discrimination, may make other Adverse Childhood Experiences more disruptive in their impact, which then contributes to increased levels of past 12 months feelings of Distress and Suicide.

Research Question 5a. Controlling for sexual orientation, gender, race/ethnicity, and age, is there a relationship between SOC and acquired vulnerability to distress and suicidality?

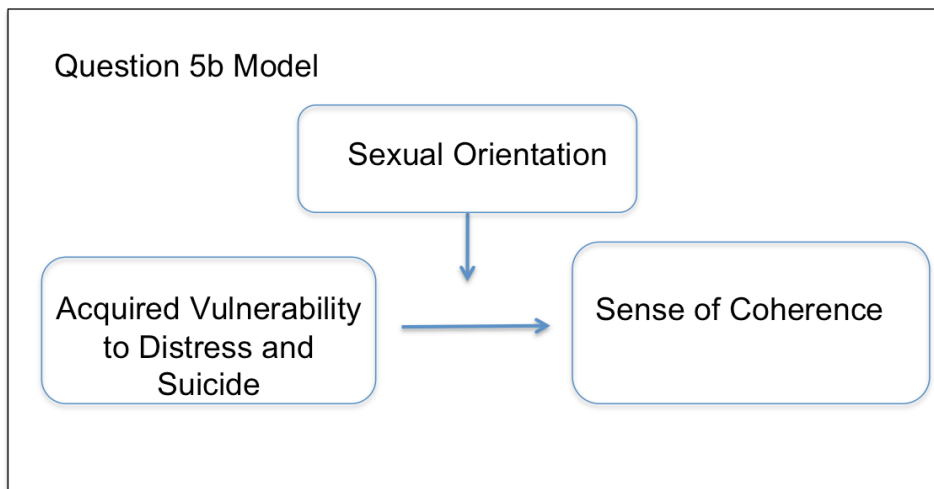
Hypothesis 5a. Lower reported levels of SOC will be correlated with higher levels of acquired vulnerability to distress and suicidality.

Rationale 5a. This question is being asked to determine how acquired vulnerability to distress and suicidality impacts SOC. This relationship is theorized based on existing literature (Antonovsky 1987, 1998) that discusses how SOC development is affected by the presence or absence of general resistance resources early in life. However, if these general resistance resources are negatively impacted, for example, by events that might contribute to acquired vulnerability to distress and suicidality, we would expect SOC development to be affected as well. The current study hypothesized that events that increase one's acquired vulnerability to distress and suicidality will also have a negative impact on factors that help build SOC. It is necessary to better understand the relationship

between SOC and acquired vulnerability for distress and suicidality before exploring this relationship in sexual orientation differences.

Research Question 5b. Controlling for gender, race/ethnicity, and age, is the relationship between acquired vulnerability to distress and suicidality and SOC moderated by a college student's sexual orientation?

Figure 3. Proposed Model for Research Question 5b.



Hypothesis 5b. LGB cisgender students will show a higher (negative) correlation between SOC and acquired vulnerability for distress and suicidality compared to heterosexual cisgender students. Sexual orientation is hypothesized to have a moderating effect between acquired vulnerability for distress and suicidality and SOC levels.

Rationale 5b. Very little is known about how SOC develops in the LGB cisgender college population. It is possible that acquired vulnerability to distress and suicidality affects SOC development differently for the LGB cisgender college population because the experiences of homophobia and parental rejection based on sexual orientation might be of a qualitatively different nature than other types of trauma that increase acquired vulnerability for distress and suicidality. Because homophobia is essentially a hostile

rejection of a person's sense of self in relation to others in the world, it is possible this type of trauma may have a greater negative impact on the development of a positive sense of self, even if students report the same level of acquired vulnerability to distress and suicidality.

CHAPTER THREE: METHODOLOGY

The study was based upon data collected from a national survey distributed to colleges and universities in Spring 2016. The web-based survey contained 135 items and received responses from 18 participating colleges and universities located throughout the United States. The parent study that this project was drawn from was entitled “Understanding Student Distress and Academic Success,” and that larger survey was sponsored by the National Research Consortium of Counseling Centers in Higher Education (NRCCCHE). Based out of the University of Texas at Austin Counseling and Mental Health Center, the NRCCCHE is a research organization dedicated to conducting large-scale studies within the field of college student mental health.

Participants

This study collected data from 18 different four-year colleges and universities located throughout the United States. The survey was sent to a total of 39,720 students, requesting their participation in this study. Of these potential participants, a total of 13,591 students responded to the survey, generating a response rate of 31.72%.

Initial study sampling was divided into three groups based on based on their academic standing (first-year students, undergraduates in their second year and beyond, and graduate students). First-year students were overrepresented in the study’s sampling, in order to provide a sufficient number of participants for the parent study “Understanding Student Distress and Academic Success,” so that these participants could be used in a longitudinal analysis in future years. The sampling strategy used for the study involved sampling 1,000 first-year students from each institution, unless the participating institution had fewer than 1,000 first-year students, in which case the entire

first-year student body was sampled. When sampling undergraduate students in their second year and beyond, the study used the following guidelines: for institutions with 5,000 or more enrolled undergraduate students, 1,000 randomly selected undergraduate students in their second year and beyond received a survey invitation. From institutions with 500 to 4,999 enrolled undergraduate students in their second year or beyond, 500 undergraduate students in their second year and beyond were randomly selected. Finally, from the institutions with fewer than 500 undergraduate students in their second year and beyond, all undergraduate students in their second year and beyond were selected. The sampling procedure used for graduate students was identical to the procedure used for sampling undergraduate students in their second year and beyond.

Prior to any cleaning of the data, the survey received responses from 13,591 students, generating a response rate of 31.72%. The data set was reviewed in order to detect and remove string responders. Additionally, participants were removed if they failed to submit responses to more than 10% of non-demographic survey questions. The final total sample size for the survey after this data cleaning was 12,010 students.

The sample was further refined to only include students who responded to the question asking them to identify their sexual orientation and the question asking for their gender identity. Students were selected for inclusion in the current study as follows: students who identified as Heterosexual, Gay/Lesbian, or Bisexual in regards to their sexual orientation; or Male or Female, in regards to their gender identity. Students who identified as Questioning or “other, please specify” to their sexual orientation; or Transgender or “other, please specify” to their gender identity, were not included in this

study's sample. The total sample size for this study was then 11,402 students. Table 1 shows the number of participants by student type.

Table 1: Classification of Study Participants

Student Classification	Total Sample	% of Total Sample	Study Sample	% of Study Sample
Total Number of Students	12010		11402	
First Year Undergraduate	4371	36.4	4123	36.2
Second Year Undergraduate	1321	11.0	1247	10.9
Third Year Undergraduate	1319	11.0	1254	11.0
Fourth Year Undergraduate	1103	9.2	1049	9.2
Fifth Year and Beyond Undergraduate	287	2.4	270	2.4
Graduate/Professional Student	3507	29.2	3371	29.6
Non-degree Seeking/Other	94	0.8	81	0.7

The four-year colleges and universities invited to participate in the survey were recruited in order to create a representative sample of United States higher education institutions relative to enrollment size, private or public qualification, and geographic location. The demographic information for the full survey as well as the current study's sample is summarized in Table 2. The age range of participants in this study's sample spanned 18 to 95 years, with a modal response of 19 years. The average age reported was 22.87 years, with a standard deviation of 6.57 years.

Table 2. Demographics of Total Sample

	Full Survey		Study Sample	
	n	%	n	%
Gender				
Male	4418	36.4	4297	37.7
Female	7426	61.7	7105	62.3
Transgender	73	0.6	0	0.0
Other	113	0.9	0	0.0
Not Reported	4	0.0	0	0.0
Sexual Orientation				

Table 2. Continued

Heterosexual	10530	87.7	10463	91.8
Gay/Lesbian	330	2.7	312	2.7
Bisexual	650	5.4	627	5.5
Question	184	1.5	0	0.0
Other	303	2.5	0	0.0
Declined to report	13	0.1	0	0.0
Race/Ethnicity				
Black/African American	718	6.0	678	5.9
Asian/ Asian American	1312	10.9	1242	10.9
White/European American	7238	60.3	6902	60.5
Hispanic/Latinx	1048	8.7	1003	8.8
Middle Eastern/East Indian	352	2.9	337	3.0
Native American/Alaska Native	34	0.3	33	0.3
Native Hawaiian/Pacific Islander	18	0.1	17	0.1
Other	146	1.2	135	1.2
Multiracial	1129	9.4	1042	9.1
Not Reported	15	0.1	13	0.1

Procedures

Prior to initiating the current study, steps were taken in order to receive approval from the Institutional Review Board (IRB) of the University of Texas at Austin. This approval was submitted by the larger parent study “Understanding Student Distress and Academic Success,” being conducted by the National Research Consortium of Counseling Centers in Higher Education (NRCCCHE), for which this current study was a part of. The survey and research proposal were submitted for review to the IRB, including informed consent, procedures for contacting and recruiting participants, and procedures for providing resources to students who may be at risk for distress. In addition, each participating university in the study received their own IRB approval from their institution before participating, or their institution gave them a waiver to precede, based on the approval granted by the University of Texas at Austin’s IRB. Once approval was received to proceed, a recruitment email was sent to students randomly

selected by their campus study representatives. The email contained information that explained the purpose of the study and invited them to participate by voluntarily following a link embedded in the email. An incentive was offered for participation. Students who received the email were informed that participating in the survey would make them eligible for a drawing to win a \$500 Amazon.com gift card. Ten \$500 gift cards were available to win. Students who did not complete the survey after receiving the initial email were sent up to four email reminders asking them to participate. An “opt out” button was included in these reminder emails for students who wished to remove themselves from receiving additional mailings. Additionally, contact information for their local study representative, the principal investigator of the current study, and the coordinator of the NRCCCHE, were provided to students should they have questions or feedback about the survey.

Following their consent to participate, students who clicked the link were able to access the electronic survey. The survey was presented and data collected using Qualtrics survey software. Students were asked to respond to several questions about their demographics, attitudes, and life experiences. The option to skip survey questions and/or withdraw from the survey at any point was provided. Based on trial runs conducted with volunteers prior to survey launch, it was predicted that the survey would take roughly 15 minutes for completion. Once surveys were completed, the data was stored in two separate, unlinked data tables: an identification table, which contained respondent identification numbers, student e-mail addresses, and information about whether the student accessed and completed the survey, and a de-identified survey response table containing anonymous student responses.

In order to help promote safety and mental wellness for students, a resources webpage was created to act as a source of information. This resource page also served as a potential intervention for students experiencing distress or suicidal thoughts while taking the survey, encouraging them to seek help. This resource page included information and referrals specific to each student's campus, and these referrals were provided to everyone who received a survey invitation, including those who elected to not participate. The information in this list of resources included contact information for local and national suicide hotlines, local and national abuse hotlines and reporting options, and information about their campus counseling services. This information was provided as a link at the bottom of every page of the survey. Students who endorsed thoughts of suicide, were directed to the resource page containing the above-mentioned information. Finally, all students who completed the survey were directed to the resource page regardless of whether or not they endorsed suicidal thoughts.

Measures

The full survey, "Understanding Student Distress and Academic Success" was a 135-item survey with forced-choice items/sub-items, Likert-type scale items/sub-items, items for which multiple response options can be selected, and open text response items/sub-items. The survey included questions regarding demographics; presence of preexisting acquired vulnerability to distress and suicide as measured by the short version of the Adverse Childhood Experience scale (CDC, 2009, 2010); experiences of psychological distress in the last 12 months, suicidal ideation, and suicide attempts as measured by the distress and suicide continuum (Drum et al 2009); and sense of coherence as measured by Aaron Antonovsky's 13-item sense of coherence scale

(Antonovsky, 1993). As part of the larger study, additional information on academic outcome variables (e.g., GPA, degree persistence) will be gathered from each campus's registrar on a yearly basis for the next six years.

In order to increase the accuracy of students' self-reports, the length of the survey and the flow of sections were carefully considered when constructing the survey. The design of the survey encouraged participants to thoughtfully consider their sense of self. The NRCCCHE identified areas of interest to be explored in the survey, and generated items based on theories from existing literature. Additionally, feedback was welcomed and sought after from directors of participating counseling centers. The final survey codebook is available in Appendix E.

Demographic Questionnaire

Participants responded to questions designed to gather demographic information, including age, gender, sexual orientation, grade classification, and race/ethnicity. Gender was measured by a forced-choice response that gives the options male, female, transgender, and other (please specify). Sexual orientation was measured by a forced-choice response that gave the options of bisexual, gay or lesbian, heterosexual, questioning, and other (please specify). Students who identified themselves as bisexual, gay, lesbian, or questioning were asked an additional question inquiring if/when they had, or planned to, "come out" about their sexual orientation to significant others. This question offered six answer choices, which captured a range of times, and included if the participant had come out in the past year, or planned to come out within the coming year. Students reporting their gender as transgender or other or their sexual orientation as

questioning or other were not included in the initial analysis of this study. Please see appendix A for detailed information about all demographic questions.

Acquired Vulnerability to Distress and Suicidality Measures

Item responses from the Adverse Childhood Experiences (ACE) scale (CDC, 2009, 2010) was collected to obtain information about the participants' preexisting vulnerability to distress and suicide. This measure assessed a student's preexisting history of adverse childhood experiences (occurring before the age of 18) that represent environmental hazards to a person's psychosocial and cognitive development (Ford et al., 2014; Rogosch et al., 2011; Leeb et al., 2011). The ACE scale consisted of 11 questions that asked the participant to indicate the frequency at which specific life events occurred, as indicated by the response options of never, once, and more than once. The ACE scale has been demonstrated to have three dimensions: household dysfunction, emotional or physical abuse, and sexual abuse (Ford, et al. 2014). Sample items include, "Did you live with anyone who was depressed, mentally ill, or suicidal?" and, "How often did a parent or adult in your home ever swear at you, insult you, or put you down?".

The ACE has been shown to predict a wide range of long-term health and behavior problems among adults, such as substance abuse, nicotine addiction, heart disease, diabetes, lung cancer, psychopathology, and premature death (Anda et al., 2002; Edwards et al., 2003; Ford et al., 2014). Of particular interest for this study, the ACE scale has been shown to predict suicidal ideation and attempts in both the adolescent and adult populations (Afifi et al., 2008; Brockie et al., 2015; Brodsky & Stanley, 2008; Isohookana et al., 2013).

This measure is deemed to possess face validity, as demonstrated by the questions directly inquiring about early childhood trauma and abuse. In addition, the measure has demonstrated strong construct validity and criterion validity (Ford et al., 2014). In addition it possesses predictive validity as evident by its ability to predict for future suicidality (Afifi et al., 2008; Brockie et al., 2015; Brodsky & Stanley, 2008; Isohookana et al., 2013.) It also demonstrates strong reliability, with a Cronbach's alpha for the subscales ranges from .61 to .80 (Ford et al., 2014). Values of Cronbach's alpha greater than 0.6 reflect an acceptable level of reliability (Streiner, 2003). In addition, research has demonstrated that the ACEs has robust test-retest reliability (Dube et al., 2003; Murphy et al. 2013), and the measure shows a high level of internal consistency, with a high probability that if one item was endorsed, at least four other items would also be endorsed. This was most prevalent for the items asking about sexual abuse, which predicted for a 88% likelihood that at least four other items would be endorsed, and the item asking about seeing a parent being treated violently, which predicted for a 96% likelihood of four or more other items being endorsed (Murphy et al., 2013.) As such, the scale has demonstrated evidence of reliability and validity as a measure for psychological studies. See Appendix B for this measure.

Past-12-Month Distress and Suicidality Measures

A series of questions were administered to measure the participant's levels of distress over the past 12 months, along with their levels of suicidal ideation and suicidal behaviors. Previous research has shown suicidal ideation is a continuum of experiences (Drum et al., 2009), and this study asked participants about different distressing and suicidal thoughts they may have experienced over the past 12 months. Importantly, the

measure also inquires as to whether they have made any suicide attempts in the past year. Suicidality status was determined by the following: placement on the distress and suicidality continuum, history of past-12-month serious suicidal ideation, and history of a past-12-month suicide attempt.

The distress and suicidality continuum question asked the participants, “*During the past 12 months, did you have any thoughts similar to the following? (Select all that apply).*” Response options to this item include the following, in the following order:

- 1) “*This is all just too much,*”
- 2) “*I wish this would all end,*”
- 3) “*I have to escape,*”
- 4) “*I wish I was dead,*”
- 5) “*I want to kill myself,*”
- 6) “*I might kill myself,*”
- 7) “*I will kill myself.*”

Participants were asked to respond “*True*” or “*False*” to each of these sub-items. Higher scores on this measure indicated more distress and impairment of the participants’ functioning. When analyzing the responses to similar questions using confirmatory factor analysis, Brownson et al. (2016) found all of the substantive items loaded onto a single factor.

Past-12-month suicidal ideation and past-12-month suicide attempts were each assessed by a single question that asked participants if they experienced that thought or behavior in the last 12 months. If a participant indicated that s/he attempted suicide, then a follow-up question was asked of them regarding how many attempts were made in the

past 12 months. The students' overall level of past-12-month distress and suicidality was determined by the highest affirmative response given to the distress and suicidality continuum questions. A separate analysis also looked at whether students endorsed experiencing past 12-month suicide ideation, and if they endorsed making a suicide attempt in the past 12 months.

Evidence for the continuous nature of the Distress and Suicidality Continuum responses was provided by Brownson et al. (2016), where the summative (i.e., total items endorsed) and maximal (i.e., maximum item endorsed) values of all endorsed items were collected. Comparisons between these values revealed a very strong, significant Pearson correlation of 0.95. When considering distress and suicidality as a continuum, Brownson et al. (2016) identify high clinical value in understanding the maximal thought endorsed by a student, and advocate for use of the maximal value when analyzing student responses. Analyses of the continuous nature of the data were conducted in the current sample, and a similarly high correlation between maximal and summative values was found ($r = .95, n = 11,878, p < .001$). See Appendix C for these measures.

Sense of Coherence

Students' sense of coherence (SOC) was examined using Antonovsky's SOC 13-item questionnaire (Antonovsky, 1993). This scale is designed to measure a global score of sense of coherence, including the three primary areas: comprehensibility (cognitive), manageability (instrumental/behavioral), and meaningfulness (motivational) (Eriksson & Lindstrom, 2005). This scale is a shorter version of a 29-item SOC (also by Antonovsky), and it has a high correlation with the longer scale ($r = 0.96$) (Eriksson & Lindstrom, 2005; Mahammadzadeh et al., 2010).

In a systematic review of 127 studies using the SOC 13-item scale by Eriksson & Lindström (2005), this measure has been demonstrated to have high face validity, consensual validity, construct validity, criterion validity, and predictive validity. The face validity has been demonstrated by responders not usually finding the measure difficult to complete (Buddeberg-Fischer, 2001), while the consensual validity has been demonstrated by the wide range of disciplines (such as medicine/psychiatry, psychology, public health/health science, nursing, sociology, and social work) that have used this scale in its original form for research purposes (Buddeberg-Fischer, 2001; Cooper, 1998). In regards to the construct validity, the factorial structure of the scale covering the three dimensions of SOC (meaningfulness, manageability, and comprehensibility) is a little less clear. Studies have shown mixed results, with the scale sometimes consisting of a single factor, while other times a three-factor solution best fits the data (Feldt, 2000). When testing criterion validity, correlations between 0.20–0.35 are deemed “slight”, between 0.35–0.65 “moderate”, and 0.65–0.85 “good” (Buddeberg-Fischer, 2001; Cohen, 2000). The SOC scale correlation with other measures of health has ranged in general from “slight” to “good”, when compared to instruments such as the General Health Questionnaire (Gibson, 1996), Health Index (Forsburg, 1996), and the Hopkin’s Symptom Checklist (Friborg, 2003). Lastly the SOC scale has been shown to possess predictive validity, as demonstrated by its ability to predict for positive health outcomes ranging from likelihood to not develop PTSD after a disaster (Eriksson, 1996), to recovering from orthopedic injuries (Ritsner, 2000), and preventing work burnout (Kalimo, 2003).

This review also found that SOC showed Test-retest reliability, with the SOC-13 item scale corresponding range is 0.69 to 0.77 among adolescents after 18 months (Buddeberg-Fischer, 2001). Eriksson & Lindström's 2005 review also found a Cronbach's alpha ranging from 0.70 to 0.92 for this scale. Values of Cronbach's alpha greater than 0.6 reflect an acceptable level of reliability (Streiner, 2003.) As such, the measure has been demonstrated to be a valid and reliable measure for psychological studies. See Appendix D for this measure.

CHAPTER FOUR: RESULTS

Data Screening and Missing Data

Before initiating primary analyses, the data used in this study were screened for missing entries and string responders. The full data set contained 13,591 responses, however 1,581 individual participants were removed for the following reasons: these respondents failed to answer more than 10% of the survey's non-demographic questions, and/or their response pattern indicated a strong likelihood of string responding. For example, participants were removed from the data set if they selected the middle response for each item in a scale for more than four scales in the survey. Following this first cleaning of the data, this study then removed participants who did not endorse a sexual orientation of either heterosexual, gay, lesbian, or bisexual, and if they did not endorse a gender identity of either male or female. This removed an additional 608 participants from the original sample and created a total study sample size of 11,402 participants.

It was determined that this study would only examine individuals who identified as cisgender and either Heterosexual, Gay, Lesbian, or Bisexual. This was done because existing research has shown the transgender and questioning population may possess a risk for distress and suicidal ideation significantly higher than even that of the LGB cisgender population (Clements-Nolle et al. 2006; Goldblum et al. 2012, Murphy, 2007), and this particular study wanted to provide a more targeted examination of what the rates of distress and suicidality were within the LGB college population. In addition, this study wanted to explore the effect of sexual orientating, distinct from gender identity.

Despite the removal of the above responders, the average percent of missing data per variable of interest was approximately 1.91% (see Table 3). Given this low

percentage of missing data, it was determined that there was no need for data imputations in the analyses. Categorical predictors were subsequently dummy coded for the purposes of this current study.

Table 3. *Percentage of Missing Data per Variable*

Variable	Total n	Missing data (%)
Distress and Suicidality Continuum	11256	1.28
Sense of Coherence	11106	2.59
Adverse Childhood Experiences	11189	1.86

Descriptive Statistics

The descriptive statistics for the variables of interest for this study are presented below. A total of 939 participants who self-identified as LGB and cisgender were included in the study (see Table 2). The control variables for all the statistical models used in the data analyses were age, gender, and race/ethnicity of participants, given the empirically established correlations between these demographic variables and differencing rates of suicidality observed in the wider population (CDC, 2015; Curtin S., Warner M., Hedegaard H., 2016). For LGB cisgender participants, their ages ranged from 18-66 with a mean of 22.98 ($SD=6.25$). In regards to gender, 67.5% of LGB cisgender participants identified as female, 32.5% identified as male. Of the LGB cisgender sample, 33.23% identified as gay or lesbian, 66.77% identified as bisexual. In regards to race/ethnicity 6.5% of the LGB cisgender sample identified as Asian/Asian American, 5.2% as Black/African American, 8.2% as Hispanic/Latinx, 1.5% as Middle Eastern/East

Indian, 0.4% as Native American/Alaska Native, 0.9% as “Other”, 65.6% as White/European American, and as 11.6% Multiracial.

Table 4. *Descriptive Statistics for Continuous Study Variables (LGB cisgender Participants)*

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Score Range</i>
Adverse Childhood Experiences	918	3.99	3.24	0-16
Sense of Coherence	921	53.11	12.98	20-91
Past 12-Month Distress & Suicidality	920	2.23	1.80	0-6

Note. Adverse Childhood Experience= Adverse Childhood Experiences Scale (ACES); Sense of Coherence = Sense of Coherence 13-item Scale; Past 12-Month Distress & Suicidality = Distress and Suicidality Continuum (DSC).

A total of 10,463 participants who self-identified as heterosexual and cisgender were included in the study (see Table 3). For heterosexual respondents, their ages ranged from 18-95 with a mean of 22.86 ($SD=6.59$). In regards to gender, 61.8% of heterosexual cisgender participants identified as female and 38.2% identified as male. In regards to race/ethnicity, 11.3% of the heterosexual cisgender sample identified as a Asian/Asian American, 6.0% as Black/African American, 8.9% as Hispanic/Latinx, 3.1% as Middle Eastern/East Indian, 0.3% as Native American/Alaska Native, 1.2% as “Other”, 60.1% as White/European American, and 8.9% as Multiracial.

Table 5. *Descriptive Statistics for Continuous Study Variables (Heterosexual cisgender Participants)*

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Score Range</i>
Adverse Childhood Experiences	10271	2.46	2.53	0-16
Sense of Coherence	10185	59.08	12.70	13-91
Past 12-Month Distress & Suicidality	10336	1.38	1.39	0-6

Note. Adverse Childhood Experience= Adverse Childhood Experiences Scale (ACES); Sense of Coherence = Sense of Coherence 13-item Scale; Past 12-Month Distress & Suicidality = Distress and Suicidality Continuum (DSC).

Selection of Controlled Variables

When conducting this study's data analysis, the variables of age, gender, and race/ethnicity were controlled for when examining correlations and moderating effects between variables. These variables were controlled for due to existing literature that has demonstrated a reliable link between these factors and differing rates of suicidality within the wider population (CDC, 2015; Curtin S., Warner M, Hedegaard H., 2016.). In particular, this was done due to previous studies that have observed that men are more likely than women to die by suicide, and that people who identify as white/European, or Native American/indigenous ancestry, are at increased risk for suicide. In addition, previous research has shown that adolescents and people over fifty are also at increased risk for death by suicide (CDC, 2015; Curtin S., Warner M., Hedegaard H., 2016).

Correlation Analyses

Several of the analyses performed in this study will use three variables of interest as both outcome and predictor variables, depending on the research question being addressed. These variables are Adverse Childhood Experiences (ACE), Sense of Coherence (SOC), and Past 12-Month Distress & Suicidality (DSC). In order to verify the absence of multicollinearity between these variables when they are used as predictors, a series of bivariate correlations were examined. This analysis indicated that each correlation was less than 0.6 (see Table 6), suggesting no evidence of worrisome relationships between the predictor variables of Adverse Childhood Experiences (ACE), Sense of Coherence (SOC), and Past 12-Month Distress & Suicidality (DSC).

Table 6: *Bivariate Correlations for All Study Variables*

Variable	1	2	3
1. ACE	--		
2. SOC	-.284*	--	
3. DSC	.257*	-.525*	--

* $p < 0.01$. Significant relationships were observed between all independent variables.

Intraclass Correlation Coefficients Analysis

Given that data was collected from various university/college institutions, intraclass correlation (ICC) coefficients were computed for items on each of the measures used in this study in order to assess for the need to perform multi-level modeling of the data. When analyzing data that reflect a clustered/hierarchical structure, hierarchical linear modeling (HLM) is often used in order to address any possible violation of the statistical assumption of independence of observations. If this assumption is violated, observed scores and errors may be correlated by factors not recognized in the data, increasing the potential for Type I errors that falsely indicate significant findings. The intraclass correlation coefficients (ICCs) were examined for this study in order to assess the multilevel structure of the data, and if clustering/grouping by university/college is present, there is a to perform HLM analyses. The value of all relevant ICCs ranged from 0.002 to 0.02, well below the standard coefficient value of 0.05, indicating that the collected data is not clustered by participating university. This supports the use of statistical analyses that do not correct or account for complications involving independence of observations and related errors, and the use of multi-level approaches

were not needed for this study (Snijders and Bosker, 2012). It was determined that multiple regression and logistic regression be used as the appropriate methods of analyses for the research questions addressed by this current study.

Assumptions

The data used in this research was examined to confirm that statistical assumptions of normality, linearity, and homoscedasticity were met in order to be able to perform multiple regression analyses of the continuous predictor and outcome variables. The distributions of the outcome and predictor variables of DSC, SOC, and ACE were examined by reviewing P-P plots, frequency tables and the observed skewness values for each variable. The Distress and Suicidality Continuum P-P plot and histogram visually reflected a positively skewed distribution, with a skewness statistic of 1.16. However, this level of skewness is considered acceptable as it is less than 2 (Kim, 2013). The Sense of Coherence scale P-P plot and histogram reflected a slightly negatively skewed distribution, with an acceptable skewness statistic of -0.18. Finally, a review of the Adverse Childhood Experiences scale P-P plot and histogram reflected a positively skewed distribution. The skewness statistic of 1.17 for ACE is again within an acceptable range. Transformations of the three variables were performed in order to determine if this could adjust for the skewness of the distributions, however, it was not found that neither transformation meaningfully impacted the skewed nature of the data. Additionally, the sample size for this study is large, and this protects against slight deviations from normality (Keith, 2005). Therefore, the determination was made to proceed with the untransformed data for all scales, since this allowed for greater interpretability of

regression coefficients. A visual examination of the frequency tables for all three continuous predictor variables of interest for this study revealed unimodal distributions.

To assess the linear relationships among variables, scatterplots of the relationships between each of the predictors and the continuous outcome variables were examined, and no significant violations of linearity were observed. No evidence was found of curvilinear or non-linear relationships existing in any of the relationships between variables examined in this study. Homoscedasticity of variance was assessed by examining the plotted data, and no evidence was revealed to suggest the violation of this assumption. In addition, residual scatterplots were examined and found to be normally distributed.

For analyses with dichotomous outcome variables, including past-12-month suicide ideation and past-12-month suicide attempts, this study used Logistic Regression methods. The assumptions around these variables were confirmed before proceeding with analyses. These assumptions included the need for a binary outcome variable and independence of observation (ie, data are not from a dependent samples design).

Distress and Suicidality Continuum Interpretation

The Distress and Suicidality Continuum has two possible scoring strategies that were considered for this analysis. In order to measure a participant's placement along the Distress and Suicide Continuum, their score would be either summed, after counting all the items they endorsed, or their score could be reported as the highest item a participant endorsed as a scale score. For this particular study it was decided to use the highest item responded to to represent placement along the Distress and Suicide Continuum, since this study was most interested in the highest point of distress and suicidality reached by participants during the past 12-month period.

The continuous nature of the DSC was explored by analyzing the full NRCCCHE sample (N = 11,880), and the the third item in the continuum (“I have to escape”) was noted as problematic given the pattern of responses by participants. Numerous students endorsed this item prior to responding to the first or second item, creating errors and misalignments in their total and highest scores. Additionally, the scores for the first and second items were highly correlated ($r = .95, p < .05$), however, only 81% of responses on the DSC show alignment of highest and total scores, leaving nearly 20% misaligned (see Table 7).

Table 7. *Distress and Suicidality Continuum Max Score Versus Total Score—Percentages*

	Total scores							
Max scores	0	1	2	3	4	5	6	7
0	.418							
1		.202						
2		.050	.099					
3		.022	.045	.064				
4		.003	.008	.016	.017			
5		.001	.003	.006	.008	.011		
6		.001	.001	.003	.005	.005	.006	
7					.001	.001	.002	.004

Note. Total Sample (N = 11,880). In all, 81.1% of responses were on the diagonal with item 3, “I have to escape” included.

The decision was made to remove the problematic third item in order to address these issues of score misalignment. With the item removed, the subsequent analysis demonstrated a stronger correlation ($r = .96, p < .05$). Response alignment increased to 93.5% between highest and total scores (see Table 8). Because of this finding, this study

decided to use the modified version of the Distress and Suicide Continuum scale by excluding item three from the analysis. This was done in order to reduce rate of item misalignment, and to improve the interpretability of the scale, when using the highest point of distress and suicidality as the representation of a person's placement along the Distress and Suicidality Continuum.

Table 8. *Distress & Suicidality Continuum Max Score Versus Total Score (Percentages) Modified*

	Total scores						
Max scores	0	1	2	3	4	5	6
0	.313						
1		.273					
2		.016	.220				
3		.002	.009	.048			
4		.001	.005	.009	.038		
5		.001	.003	.008	.010	.028	
6					.001		.015

Note. Total Sample (N = 11,880). In all, 93.5% of responses were on the diagonal with item 3, “I have to escape” excluded

Primary Analyses

Research Question 1. Controlling for gender, race/ethnicity, and age, do LGB cisgender college students report greater acquired vulnerability to distress and suicidality compared to heterosexual cisgender college students?

Analysis and Results 1. A simultaneous multiple linear regression analysis was performed to determine if there were significant differences between LGB and heterosexual cisgender members of the study sample in regards to their reported

experiences of vulnerability to distress and suicidality, as reported by their ACE score. This was performed by looking at a student's ACE score regressed on their sexual orientation, while controlling for age, gender, and ethnicity. This found that sexual orientation significantly predicted the experience of adverse childhood events ($\beta = -.16$, $t(9272) = -15.97$, $p < .001$), with LGB cisgender participants reporting significantly more experiences of Adverse Childhood Experiences ($M = 3.99$, $SD = 3.24$) compared to their heterosexual peers ($M = 2.46$, $SD = 2.53$). All other included variables significantly contributed to the regression model as well, including age ($\beta = .106$, $t(9272) = 10.49$, $p < .001$), gender ($\beta = .09$, $t(9272) = 8.79$, $p < .001$), and race/ethnicity ($\beta = .87$, $t(9272) = 8.56$, $p < .001$). Together, these variables also explained a significant proportion of variance in the ACE score ($R^2 = .05$, $F(4, 9268) = 128.81$, $p < .001$).

Research Question 2a. Controlling for gender, race/ethnicity, and age, do LGB cisgender college students report increased rates of past-12-month distress and suicidality compared to heterosexual cisgender college students?

Analysis and Results 2a. A simultaneous multiple linear regression analysis was performed to determine if there were significant differences between LGB cisgender participants and heterosexual cisgender students in their reports of past 12-month distress and suicidality as measured on the Distress and Suicidality Continuum. Past 12-month distress and suicidality was regressed on sexual orientation, while controlling for age, gender, and race/ethnicity. Sexual orientation was found to predict for past 12-month distress and suicidality ($\beta = -.17$, $t(9338) = -16.35$, $p < .001$), with LGB cisgender participants reporting significantly higher levels of distress and suicidality ($M = 2.23$, $SD = 1.80$) compared to their heterosexual peers ($M = 1.38$, $SD = 1.39$). All other included

variables significantly contributed to the regression model as well, including age ($\beta = -.09$, $t(9338) = -8.37$, $p < .001$), gender ($\beta = .08$, $t(9338) = 8.32$, $p < .001$), and race/ethnicity ($\beta = .05$, $t(9338) = 5.26$, $p < .001$). Together, these variables explained a significant proportion of variance in past 12-month distress and suicidality scores ($R^2 = .05$, $F(4, 9334) = 109.36$, $p < .001$).

Research Question 2b. Controlling for gender, race/ethnicity, and age, do LGB cisgender college students report increased rates of past-12-month suicide ideation compared to heterosexual cisgender college students?

Analysis and Results 2b. Several studies on statistical methods have noted that the use of linear function analyses such as Ordinary Least Squares (OLS) are problematic when attempting to model with categorical outcome variables as these result in probabilities beyond the range of 0 and 1 (DeMaris, 1995). For the current study, a logistic regression was performed to determine if there were significant differences between LGB and heterosexual cisgender participants endorsement of past 12-month thoughts of suicide. Past 12-month thoughts of suicide was regressed on sexual orientation, while controlling for age, gender, and race/ethnicity (see Table 9). A test of the full model against a constant-only model proved to be statistically significant, indicating that the predictors reliably distinguished between LGB and heterosexual participants cisgender [$\chi^2(4, N=9440) = 201.70$, $p < .001$].

Table 9. *Summary of Logistic Regression Analysis for Variables Predicting Decisions to endorsement of suicidal ideation in the past 12-months for LGB cisgender (n = 783) and heterosexual cisgender (n = 8657) students, controlling for background variables.*

Predictors	12-month Suicidal Ideation		
	<i>B</i>	<i>SE B</i>	<i>Odds Ratio (OR)</i>
Race (0 = White, 1 = Non-white, other)	0.02	0.09	1.02
Age***	-0.09	0.01	0.91
Gender (0 = Male, 1 = Female,)***	0.25	0.10	1.29
Sexual Orientation***	1.32	2.68	3.74

Note: e^B = exponentiated *B*. Past 12-month suicidal ideation coded as 1 for *yes* and 0 for *no*. Sexual orientation is the reference category, with LGB students coded as 0 and heterosexual students coded as 1. * $p < .05$. ** $p < .01$. *** $p < .001$

Nagelkerke's *R* of .059 indicates a relationship between prediction and grouping, and the overall prediction success for the model was found to be 94.20%. The Wald criterion demonstrated significant contributions by the predictors of gender and age ($p < .001$), however race was not a significant predictor. Sexual orientation was found to predict for past 12-month thoughts of suicide ($\beta = 1.32$, Wald $\chi^2 = 139.80$, $p < .001$), and the Exp(*B*) value indicates that LGB cisgender participants report significantly higher odds ($p < .001$) of being 3.74 times more likely than the heterosexual cisgender participants of having considered suicide in the past twelve months with a 95% CI [3.004, 4.651]. In the entire sample, 15.7% of LGB cisgender sample reported suicide ideation in the past twelve months, compared to 4.8% of the heterosexual cisgender sample.

Research Question 2c. Controlling for gender, race/ethnicity, and age, do LGB cisgender college students report increased rates of past-12-month suicide attempts compared to heterosexual cisgender college students?

Analysis and Results 2c. A logistic regression was performed to determine if there were significant differences between LGB and heterosexual cisgender participants endorsement of past 12-month suicide attempts. Past 12-month suicide attempts was regressed on sexual orientation, while controlling for age, gender, and race/ethnicity (see Table 10). Testing the full model against a constant-only model proved to be statistically significant, indicating that the predictors reliably distinguished between LGB and heterosexual cisgender participants [$\chi^2(4, N=9446) = 40.20, p < .001$].

Table 10. *Summary of Logistic Regression Analysis for Variables Predicting Decisions to endorsement of suicide attempt in the past 12-months for LGB (n = 785) and heterosexual (n = 8661) cisgender students, controlling for background variables.*

	12-month suicide attempt		
Predictors	<i>B</i>	<i>SE B</i>	<i>Odds Ratio (OR)</i>
Race (0 = White, 1 = Non-white, other)	0.39	0.28	1.48
Age***	-0.16	0.05	0.85
Gender (0 = Male, 1 = Female,)	0.16	0.29	1.17
Sexual Orientation***	1.52	0.30	4.58

Note: Past 12-month suicide attempt coded as 1 for *yes* and 0 for *no*. Sexual orientation is the reference category, with LGB cisgender students coded as 0 and heterosexual cisgender students coded as 1.

* $p < .05$. ** $p < .01$. *** $p < .001$

Nagelkerke's R of .06 indicates a relationship between prediction and grouping, and prediction success overall was 99.4%. The Wald criterion demonstrated significant contributions by the predictor of age ($p < .001$), however race and gender were not found to be significant predictors. Sexual orientation was found to predict for past 12-month suicide attempts ($\beta = 1.52$, Wald $\chi^2(1) = 25.92, p < .001$), with the Exp(B) value indicating that LGB cisgender participants are 4.58 times more likely than the heterosexual cisgender participants of having attempted suicide in the past twelve months

(95% CI = [2.55, 8.22]). In the entire sample, 2.6% of the LGB cisgender sample reported having made a suicide attempt in the past 12 months, compared to 0.5% of the heterosexual cisgender sample.

Research Question 3. Controlling for gender, race/ethnicity, and age, do LGB cisgender college students report lower levels of sense of coherence compared to heterosexual cisgender students?

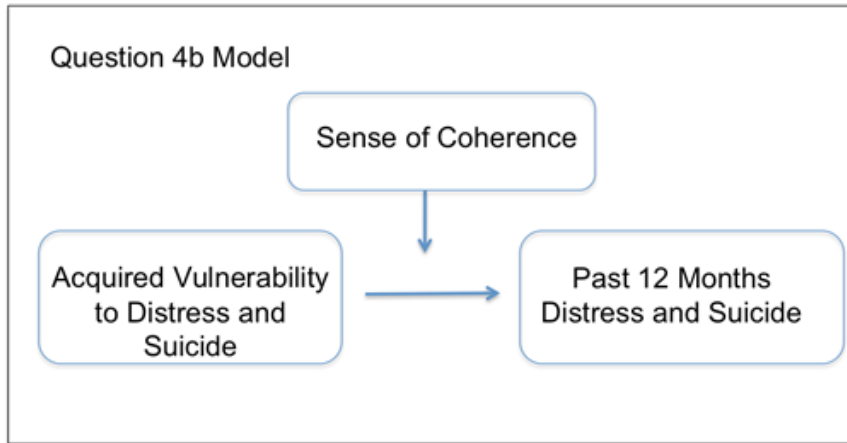
Analysis and Results 3. A simultaneous multiple linear regression analysis was performed to determine if there were significant differences between LGB and heterosexual cisgender members of the study sample in regards to their reported levels of SOC. This was performed by looking at a student's SOC score regressed on their sexual orientation, while controlling for age, gender, and ethnicity. This found that sexual orientation significantly predicted the students level of SOC ($\beta = .14$, $t(9208) = 13.68$, $p < .001$), with LGB cisgender participants reporting significantly lower scores on the SOC measure ($M = 53.11$, $SD = 12.98$) compared to their heterosexual cisgender peers ($M = 59.08$, $SD = 12.70$). All other included variables, with the exception of gender, significantly contributed to the regression model as well, including age ($\beta = .179$, $t(9208) = 17.75$, $p < .001$), and race/ethnicity ($\beta = -.11$, $t(9208) = -11.30$, $p < .001$). Together, these variables also explained a significant proportion of variance in the SOC score [$R^2 = .063$, $F(4, 9204) = 154.30$, $p < .001$].

Research Question 4a. Controlling for sexual orientation, gender, race/ethnicity, and age, is there a relationship between acquired vulnerability to distress and suicidality and a student's placement on the Distress and Suicide Continuum?

Analysis and Results 4a. A simultaneous multiple linear regression analysis was performed to determine if there is a significant relationship between level of vulnerability to distress and suicidality and placement along the Distress and Suicide continuum. Specifically, a multiple regression analysis was calculated to predict past 12-month placement along the Distress and Suicide Continuum based on the Adverse Childhood Experiences scores. For this analysis, past 12-month Distress and Suicidality scores were regressed on the Adverse Childhood Experiences scale, while controlling for age, gender, race/ethnicity, and sexual orientation. Results indicate that ACE scores significantly predict level of past 12-month Distress and Suicidality ($\beta = .24$, $t(9167) = 23.36$, $p < .001$). All other included variables significantly contributed to the regression model as well, including age ($\beta = -.11$, $t(9167) = -10.76$, $p < .001$), gender ($\beta = .06$, $t(9167) = 6.13$, $p < .001$), sexual orientation ($\beta = -.13$, $t(9167) = -12.68$, $p < .001$), and race/ethnicity ($\beta = .03$, $t(9167) = 3.20$, $p < .001$). Together, these variables explained a significant proportion of variance in past 12-month distress and suicidality scores [$R^2 = .10$, $F(5, 9162) = 198.75$, $p < .001$].

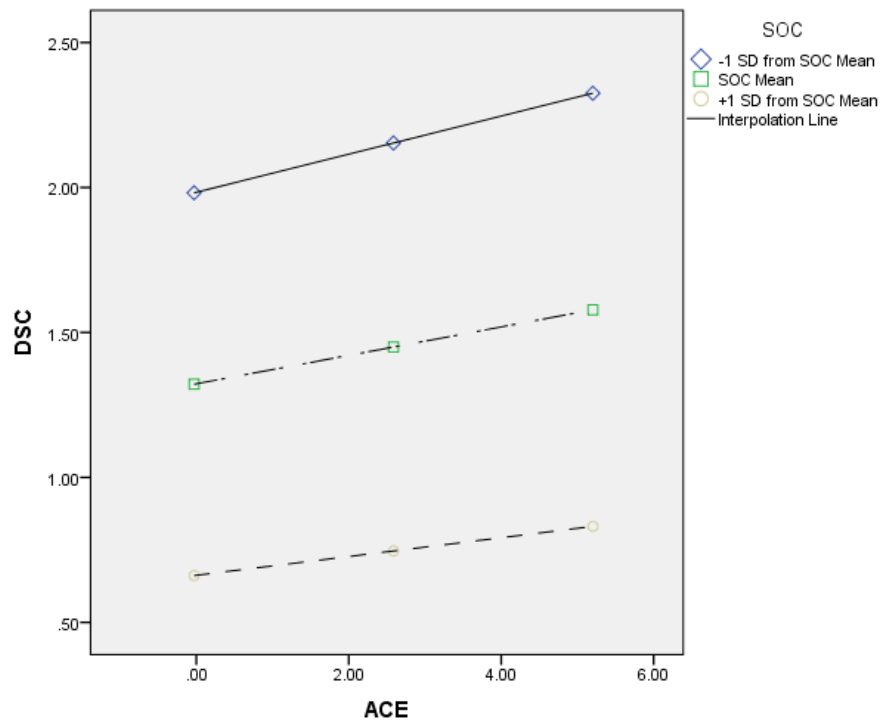
Research Question 4b. Controlling for gender, race/ethnicity, and age, is the relationship between acquired vulnerability for distress and suicidality and a student's placement over the last 12 months along the Distress and Suicide Continuum moderated by Sense of Coherence?

Figure 4. *SOC as Moderator.*



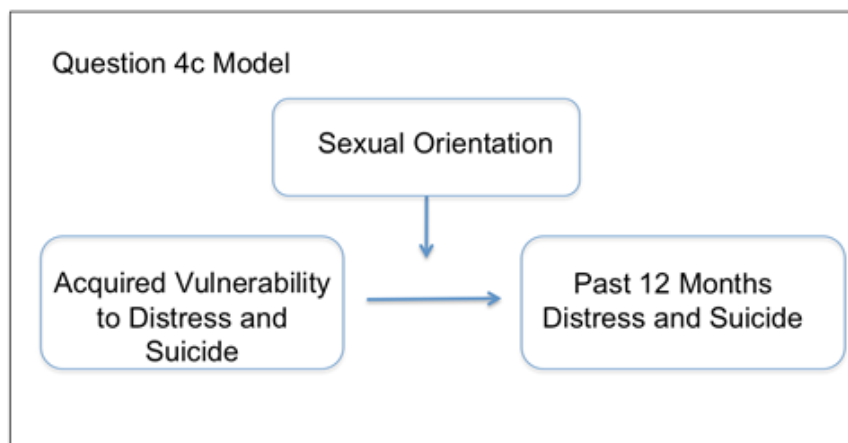
Analysis and Results 4b. Sense of Coherence was examined as a moderator of the relationship between acquired vulnerability to distress and suicide, and past 12-month experience of distress and suicidal ideation. To explore the hypothesized moderating effect between these two variables, the PROCESS macro (Hayes, 2013) for SPSS was utilized. The interaction term was found to be significant ($b = -.001$, $t(8941) = -3.46$, $p < .001$), and sense of coherence accounted for a significant increase in the proportion of the variance in past 12-month experience of distress and suicidal ideation ($\Delta R^2 = .001$, $F(1, 8934) = 11.97$, $p < .001$) when examining its moderating effect. As Sense of Coherence increased, the relationship between acquired vulnerability to distress and suicide and past 12-month experience of distress and suicidal ideation decreased. Acquired vulnerability to distress and suicide was significantly related to 12-month distress and suicidal ideation when sense of coherence was at one standard deviation below its mean ($b = .07$, $p < .001$), at its mean ($b = .05$, $p < .001$), and one standard deviation above its mean ($b = .03$, $p < .001$). Examination of the interaction plot (see Figure 1) showed that lower SOC is associated with a statistically significant steeper slope in the relationship between a person's ACE score and their 12-month distress and suicidality.

Figure 5. *SOC as Moderator.*



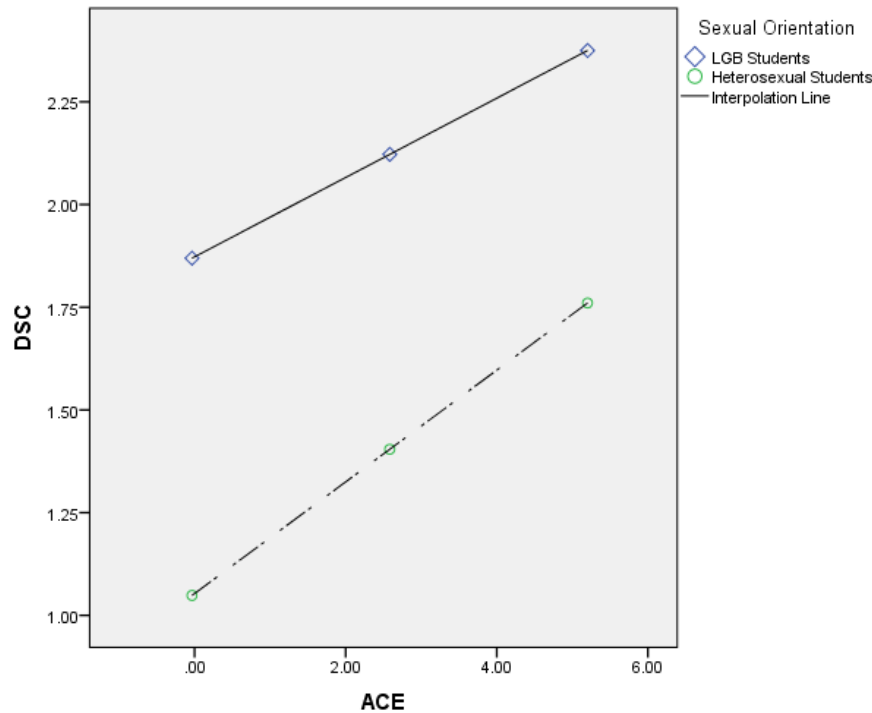
Research Question 4c. Controlling for gender, race/ethnicity, and age, is the relationship between acquired vulnerability for distress and suicidality and a student's placement over the last 12 months along the Distress and Suicide Continuum moderated by a college student's sexual orientation?

Figure 6. *Sexual Orientation as Moderator Model.*



Analysis and Results 4c. Sexual orientation was examined as a moderator of the relationship between acquired vulnerability to distress and suicide, as measured by the ACE scale, and past 12-month experience of distress and suicidal ideation. To explore the hypothesized moderating effect between these two variables, the PROCESS macro (Hayes, 2013) for SPSS was utilized. The interaction term was found to be significant ($b=.04$, $t(9167)= 2.37$, $p = .02$), and sexual orientation accounted for a significant increase in the proportion of the variance in past 12-month experience of distress and suicidal ideation ($\Delta R^2 = .001$, $F(1, 9161) = 5.64$, $p = .02$) when examining its moderating effect. When students self-identified their sexual orientation as LGB cisgender, the relationship between acquired vulnerability to distress and suicide and past 12-month experience of distress and suicidal ideation increased. Acquired vulnerability to distress and suicide was significantly related to 12-month distress and suicidal ideation for both students who identified as cisgender LGB ($b = .10$, $p < .001$), and as cisgender heterosexual ($b = .14$, $p < .001$). However, examination of the interaction plot (see Figure 3) showed that self-identification as cisgender LGB is associated with a statistically significant steeper slope in the relationship between a person's ACE score and their 12-month distress and suicidality.

Figure 7. *Sexual Orientation as Moderator.*



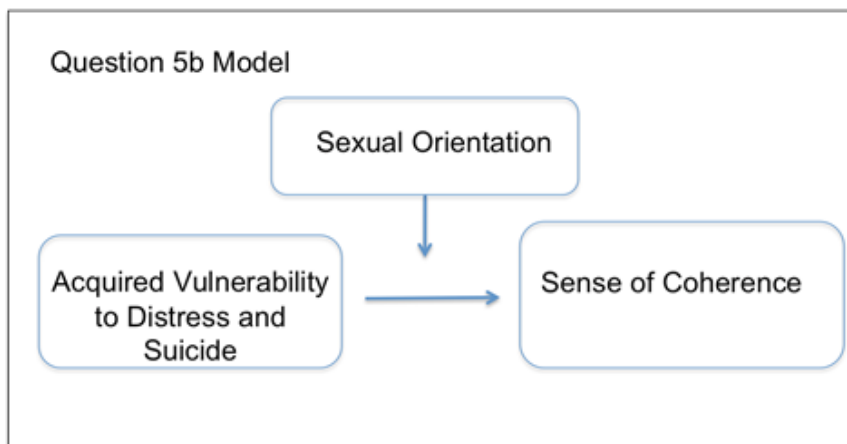
Research Question 5a. Controlling for sexual orientation, gender, race/ethnicity, and age, is there a relationship between SOC and acquired vulnerability to distress and suicidality?

Analysis and Results 5a. A simultaneous multiple linear regression analysis was performed to determine if there is a significant relationship between level of vulnerability to distress and suicidality and a participant's Sense of Coherence score. Specifically, a multiple regression analysis was calculated to predict Sense of Coherence scores based on the Adverse Childhood Experiences scores. Sense of Coherence scores were regressed on the Adverse Childhood Experiences scale, while controlling for age, gender, race/ethnicity, and sexual orientation. Results indicate that Adverse Childhood Experiences scores significantly predict for Sense of Coherence, $\beta = -.29$, $t(9042) = -28.57$, $p = .001$. All other included variables, with the exception of gender, significantly

contributed to the regression model as well, including age ($\beta = .21$, $t(9042) = 20.92$, $p < .001$), sexual orientation ($\beta = .09$, $t(9042) = 9.25$, $p < .001$), and race/ethnicity ($\beta = -.09$, $t(9042) = -8.99$, $p < .001$). Together, these variables explained a significant proportion of variance in Sense of Coherence scores ($R^2 = .14$, $F(5, 9037) = 291.13$, $p < .001$).

Research Question 5b. Controlling for gender, race/ethnicity, and age, is the relationship between acquired vulnerability to distress and suicidality and SOC moderated by a college student's sexual orientation?

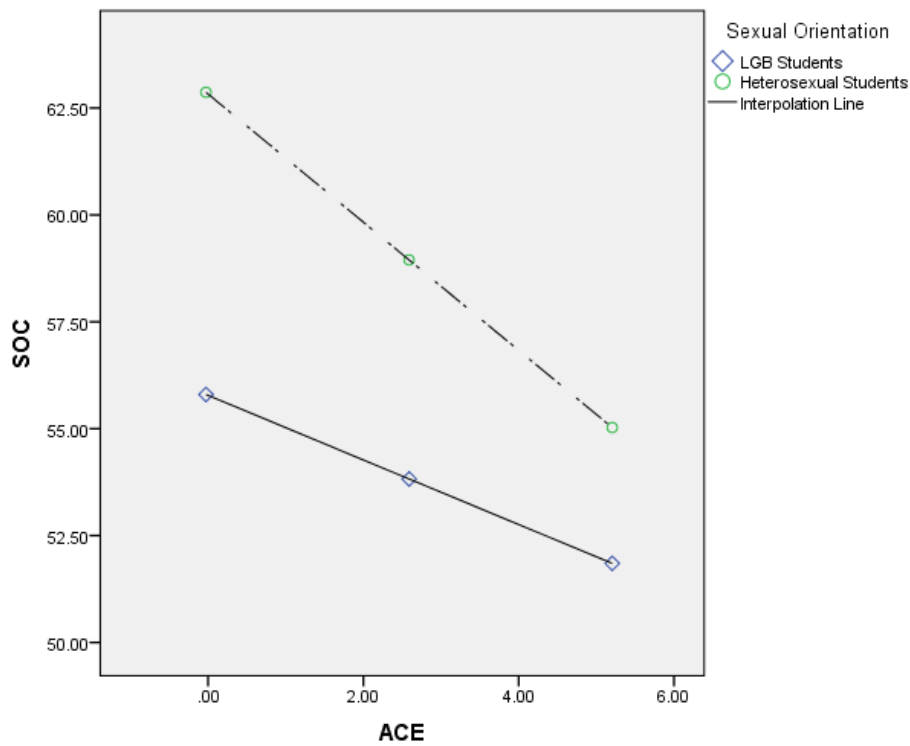
Figure 8. *Sexual Orientation as Moderator Model.*



Analysis and Results 5b. Sexual orientation was examined as a moderator of the relationship between acquired vulnerability to distress and suicide, as measured by the ACE scale, and Sense of Coherence. The PROCESS macro (Hayes, 2013) for SPSS was utilized to analyze the hypothesized moderating effect. The interaction term was found to be significant ($b = -.74$, $t(9042) = -5.10$, $p < .001$), with sexual orientation accounting for an increase in the proportion of the variance in SOC ($\Delta R^2 = .003$, $F(1, 9036) = 25.99$, $p < .001$) when examining its moderating effect. When students self-identified as LGB cisgender, the relationship between acquired vulnerability to distress and suicide and SOC decreased. Acquired vulnerability to distress and suicide was significantly

negatively correlated to 12-month distress and suicidal ideation for both LGB cisgender ($b = -.75, p < .001$), and as heterosexual cisgender ($b = -1.50, p < .001$) students. The interaction plot (see Figure 5) shows that self-identification as LGB cisgender is associated with a slope significantly less steep than that of their heterosexual cisgender peers in the relationship between ACE scores and experience of 12-month distress and suicidality.

Figure 9. *Sexual Orientation as a Moderator.*



CHAPTER FIVE: DISCUSSION

The primary goal of this study was to add to our understanding of how distress and suicidality are currently being experienced within the Lesbian, Gay, and Bisexual (LGB) cisgender college student population. This study also aimed to identify if the trend of increased distress and suicide that has previously been found in the wider adolescent LGB population (Haas et al., 2011, Marshal et al., 2011) is also occurring in the college LGB cisgender student population. Lastly, this study worked to identify a potential protective factor to distress and suicide in the form of the sense of self construct, Sense of Coherence (Antonovsky, 1979, 1998). Sense of Coherence was examined in this study to see if it could serve as a means of reducing the likelihood that a student will experience suicidality while in college, even when they enter college with higher levels of acquired vulnerability to distress and suicide.

This study found that similar to the trend observed in the wider adolescent sexual minority population, where research has found an increased risk for distress and suicide (Haas et al., 2011, Marshal et al., 2011), college students who identify as a member of the cisgender LGB population are also experiencing distress and suicidality at rates significantly higher than the wider cisgender heterosexual population. This study also demonstrated that the increased rates of distress and suicide for the LGB cisgender population appear to be partly contributed by this population entering college with higher levels of acquired vulnerability to distress and suicide when compared to their heterosexual cisgender peers, as measured by an increased rate of reporting negative early life experiences on Adverse Childhood Experiences Scale. Furthermore, this study demonstrated that for the LBG cisgender students in this sample, their levels of the

protective sense of self factor, Sense of Coherence, were significantly lower when compared to the heterosexual cisgender population. These two factors give us new insight into why LGB cisgender students may be experiencing increased rates of distress and suicidality during their time in college, when compared to their heterosexual cisgender peers.

This study also found evidence of statistically significant effects when several of these factors were explored as moderators. Sexual orientation and SOC were both found to have a statistically significant effect on the relationship between adverse childhood experiences and past-12 month distress and suicidality. Additionally, the moderating effect that sexual orientation has on adverse childhood experiences and SOC development was shown to be statistically significant. However, when examining for their practical impact on these relationships, it appeared that the observed significance was due to the large nature of the sample size, while the practical, “real-world” importance of these moderators was deemed to be negligible.

The information gleaned from this study allows us to better understand the challenges that LGB cisgender college students face during their academic experiences. By identifying the increased rates of vulnerability to distress and suicidality that many LGB cisgender students enter college with, college mental health care providers can be better prepared to serve the unique needs of this group. Additionally, by demonstrating SOC as a dimension of resilience that can be further bolstered in LGB community, this study has identified a new area for intervention for future college suicide prevention programming. Taken as a whole, the findings of this study can help make college a safer and healthier experience for all student communities.

Discussion of Sexual Orientation and Distress and Suicide

While several past studies have shown that adolescent sexual minorities are at increased risk for suicidality (Russell & Joyner, 2001; Garofalo, et al., 1998; King et al., 2000; Haas et al., 2011), this study sought to expand on these findings by exploring the rates of suicidality in a college sample, and by narrowing the focus to members of the sexual minority community that identify as either lesbian, gay, or bisexual. This study also worked to expand on previous research by examining suicide not as a dichotomous (Yes/No) set of behaviors, as past research has often characterized it, but as a broader continuum of distress and suicidality (Drum et al., 2009). In doing so, this study then sought to capture a more comprehensive look at how the problem of distress and suicidality is currently being experienced within the college LGB cisgender population.

Similar to past research that has looked at suicidality within the LGB population (Russell & Joyner, 2001; Haas et al., 2011), this study found that the sampled cisgender LGB students in this study demonstrated increased rates of suicidality compared to their cisgender heterosexual peers. Compared to heterosexual cisgender students, LGB cisgender students had 3.74 times more thoughts of suicide in the past 12-month period. When looked at as a percentage of the total sample, 15.7% of LGB cisgender students reported having experienced past 12-month thoughts of suicide, compared to 4.8% of the heterosexual cisgender population. This trend of more suicidality within the LGB cisgender student sample was also found when this study examined past 12-month history of suicide attempts. Again, LGB cisgender students were shown to be at increased risk for having experienced suicidality when compared to heterosexual cisgender students, being 4.58 times more likely to have attempted suicide in the last year. For this sample,

2.6% of LGB cisgender students reported that they had made a serious suicide attempt within this measured time frame, as opposed to only 0.5% of the heterosexual cisgender student population.

Expanding on these previous findings, this study considered how thoughts and behaviors that may be linked to suicide, but which have not reached the stage of active suicidality, may also be represented within the LGB cisgender college population in comparison to their heterosexual cisgender peers. Building on the work done by Drum et al. (2009) and Brownson et al. (2016), this study found that LGB cisgender students not only experienced higher rates of suicidality, they also appeared to experience more of the thoughts and behaviors of distress, which for some students over time may develop into future suicidality. When examined along the Distress and Suicidality Continuum (Drum et al. 2009), the LGB cisgender sample reported a mean score of 2.23 ($SD = 1.8$), which is between the items, “I wish this would all end” and “I wish I was dead”, compared to the mean score of 1.38 ($SD = 1.39$) for heterosexual cisgender students, which lies between the answers, “This is all just too much” and “I wish this would end.” This one point difference is a meaningful one, as it highlights the greater general distress that LGB cisgender students experience in contrast to their heterosexual cisgender peers. In addition to the majority of LGB cisgender students having experienced active distress in the past year, the evidence in this study suggests that this population as a whole is at significantly higher risk of developing thoughts and behaviors linked to possible future suicidality. This focus on distress has been missed by previous research, where students have only been examined for their active suicidal thinking.

These findings demonstrate that the trends of increased suicidality found in the wider adolescent LGBTQ population (Garofalo, et al., 1998; King et al., 2008) also appears to be present within the LGB cisgender college population. Furthermore, the LGB cisgender subpopulation of the wider sexual minority community appears to also experience a significant increase in distress and suicidality in contrast to their heterosexual cisgender peers, even when the higher distress transgender and questioning students, known to exhibit higher distress (Clements-Nolle et al., 2006; Goldblum et al., 2012, Murphy, 2007), are not included in the analysis. The increased rates of suicidality appear to only represent a portion of the increased distress and suicidality that members of the LGB cisgender college population experience. For college mental health providers and programs, these findings are especially important as college and universities work to decrease the experiences of distress on their campuses, and can inform the creation of interventions which support sexual minority students and focus on their unique needs.

Sexual Orientation and Adverse Childhood Experiences

This study also examined whether LGB cisgender college students were entering the college environment with increased vulnerability to distress and suicide compared to their heterosexual cisgender peers. While this study predicted that LGB cisgender college students would be entering the college environment with more acquired vulnerability to distress and suicide, this assumption needed to be tested, since it was possible that LGB cisgender students who had experienced increased acquired vulnerability to distress and suicide before entering the college environment, may not matriculate into the college setting as often as other LGB cisgender students who had not experienced these types of life events. This study hypothesized that it would find

increased acquired vulnerability to distress and suicide in LGB cisgender college students, based on previous literature demonstrating that LGB youth are more likely to have experienced physical and verbal abuse, harassment, social rejection, and being the target of prejudice (D'Augelli, Grossman, & Starks, 2006; Huebner, Rebchook, & Kegeles, 2004) and lack of family stability and support (Balsam, Rothblum, & Beauchaine, 2005) when compared to their heterosexual peers.

Although this study was unable to examine if LGB youth are matriculating to college at the same rates as heterosexual youth, this study did find that LGB cisgender college students report increased rates of negative early life experiences, as measured by the Adverse Childhood Experiences scale, compared to the heterosexual cisgender college population. In particular, this study found that, on average, LGB cisgender college students endorsed having experienced significantly more negative early life events in contrast to their heterosexual cisgender peers. On the ACE scale, which was used in this study as a way to examine a person's acquired vulnerability to distress and suicide on a range of scores between 0 and 16, the LGB cisgender college sample endorsed a mean score of 3.99 items, (with a SD of 3.24), compared to the heterosexual cisgender college sample who endorsed 2.46 items (with a SD of 2.52). These findings appear consistent with previous literature demonstrating that LGB youth report higher rates of early disruptive home environments compared to the wider population (Balsam, Rothblum, & Beauchaine, 2005).

This information is an important point of reference when we consider how to design suicide prevention programs for the LGB community. Although the college environment may be a stressful time for all students, members of the LGB cisgender

college population may have more vulnerability to the negative effects of stress and may be more vulnerable to have their stress transition into distress. In regards to the needs of the LGB cisgender college population, it may be helpful to provide interventions for students currently in distress, while also designing preventative interventions to protect students against the cumulative impact of stress. This could include working to improve a student's sense of self, which may bolster their internal resilience to distress and suicidality.

Adverse Childhood Experiences on Sense of Coherence

The sense of self construct Sense of Coherence (SOC) (Antonovsky, 1979, 1998) was examined in this study as previous research has demonstrated that greater SOC is correlated with both physical and emotional health (Sanden-Eriksson, 2000; Surtees et al., 2003; Svartvik et al., 2000). Furthermore, a national study in 2009 on distress and suicidality in the college population conducted by the National Research Consortium of College Counseling Centers in Higher Education (Brownson et al., 2016) found that increased SOC, as measured with an abbreviated SOC scale, was shown to act as a protective quality when looking at rates of distress and suicidality in the college population.

Based on these previous findings, SOC appeared to be a possible target for future interventions within the college population, since it may be a protective quality that can be fostered in students, helping reduce the rates of stress developing into distress or suicidality. However, this study was also interested in examining how acquired vulnerability to distress and suicide, such as early disruptive and traumatic life events, may also impeded the development of protective qualities to distress and suicide, such as

SOC. Previous research by Aaron Antonovsky (1998) hypothesized that the development of SOC is linked to early life experiences that help shape a person's view of how they relate to their world. These experiences are often described as general resistance resources (GRRs) (Griffiths et al., 2011) that consist of “physical (e.g., a strong physique, strong immune system, genetic strengths), artifactual (e.g., money, food, power), cognitive (e.g., intelligence, education, adaptive strategies for coping), emotional (e.g., emotional intelligence), social (e.g., support from friends and/or family), or macrosocial (e.g., culture and shared belief systems)” resources that influence a person’s ability to successfully cope with life stressors (Griffiths et al., 2011). Because these factors appear to be partly captured in the ACE scale, which measures early childhood abuse and trauma, it is hypothesized that as someone experiences more life events captured on the ACE scale, their sense of self development and SOC should also decline.

The current study found evidence to support this hypothesis. For students entering college with more acquired vulnerability to distress and suicidality, as captured by their ACE score, there was a statistically significant correlation with lower scores on Antonovsky’s (1993) 13-item Sense of Coherence scale ($\beta = -.29$, $t(9042) = -28.57$, $p < .001$). This finding shows that as students experience more negative early life events, such as physical and emotional abuse, bullying, or early family disruption, their sense of self development appears to be negatively impacted. This indicates that while students gain experiences that may add to their allostatic load and their mental “wear and tear,” they may also suffer in their development of protective mental resources. While colleges and universities cannot prevent students from entering school with an increased acquired vulnerability to distress and suicide, for many students their SOC is still malleable during

their college years (Darling et al., 2007). This finding suggests that building students' coping resource of SOC may be a productive target for future interventions, since the students who appear to have the lower indicators of a developed sense of self, and the most room for growth, also appear to be students who are at increased risk for their life stressors developing into experiences of stress and suicidality.

Sexual Orientation and Sense of Coherence

No research has yet examined the rates of SOC in the LGB cisgender college student population nor how these rates compare to the wider heterosexual student population. This study hypothesized that the LGB cisgender college sample would have lower rates of SOC compared to their heterosexual cisgender college peers, as earlier studies have demonstrated that sexual minorities are more likely to experience early life trauma and victimization than heterosexual populations (D'Augelli, Grossman, & Starks, 2006; Huebner, Rebchook, & Kegeles, 2004). In consideration of this, the current study hypothesized that sexual minority students may be entering college with less access to early GRRs (Griffiths et al., 2011) when compared to their heterosexual peers. A decrease in these early protective life experiences would then explain the link to lower SOC development later in life for LGB cisgender students.

This study found evidence in support of this hypothesis, with LGB cisgender participants reporting significantly lower average scores ($M = 53.11$, $SD = 12.98$) in contrast to their heterosexual cisgender peers ($M = 59.08$, $SD = 12.70$) on the SOC measure, where scores ranged from 13-91. This difference in sense of self-development as captured by SOC, supports one hypothesis for why LGB cisgender college students may be experiencing more distress and suicide while in college. The combination of LGB

cisgender students entering college with higher rates of acquired vulnerability to distress and suicide, while also possessing lower rates of this internal protective quality to distress and suicide, appears to contribute to LGB cisgender students progressing further down the distress and suicidality continuum when presented with a stressor, in contrast to their heterosexual cisgender peers.

Adverse Childhood Experiences on the Distress and Suicide Continuum

One of the assumptions of the current study is that the Adverse Childhood Experiences scale (CDC, 2009, 2010) would be a good measure of acquired vulnerability to distress and suicide that students enter college with. The scale was selected as it includes items which capture the subject's experience of negative influences on psychosocial and cognitive development (Ford et al., 2014; Rogosch et al., 2011; Leeb et al., 2011), and experiences of psychological "wear and tear," both of which reduce an individual's psychological resilience to distress and suicidality. Previous research also linked this scale to a wide range of long-term health problems and behaviors in adults, including substance abuse, nicotine addiction, heart disease, diabetes, lung cancer, psychopathology, and premature death (Anda et al., 2002; Edwards et al., 2003, Ford et al., 2014). Most relevant for this study, the ACE scale has been shown to be predictive of suicidal ideation and attempts in both adolescent and adult populations (Afifi et al., 2008; Brockie et al., 2015; Brodsky & Stanley, 2008; Isohookana et al., 2013). For these reasons, it was important to confirm that this scale was operating in this study sample as expected, in order to support the conclusions of later results.

This study found that similar to expectations, the ACE scale predicted the endorsement of past 12-month distress and suicidality ($\beta = .24$, $t(9167) = 23.36$, $p <$

.001), as measured by a student's placement along the distress and suicide continuum. While the ACE scale was both statistically significant and accounted for a conceptually useful proportion of the variance of past 12-month distress and suicidality, it is worth noting that a large portion of the variance of past 12-month suicidality was not accounted for in this model. This was to be expected, given the wide range of potential factors that can impact someone's experiences of suicidality, such as intra-personal factors, wider social factors, and current stressors that are not captured in the measures used. Given this context, it appears that the ACE scale was able to function effectively in providing an approximation of what level of vulnerability to distress and suicide students may be carrying with them as they transition into college.

Sense of Coherence's Moderating Effect on the Relationship Between Adverse Childhood Experiences and Distress and Suicide

In addressing earlier research questions, this study demonstrated the predictive relationship between a student's acquired vulnerability to distress and suicide (as measured by the ACE score) and the student's past 12-month placement along the distress and suicidality continuum. Additionally, this study wished to examine the moderating role Sense of Coherence may play in the relationship between a student's earlier acquired vulnerability to distress and suicide and their current placement along the distress and suicide continuum. The current study hypothesized that SOC would strengthen in its protective quality as a student's score on the construct of acquired vulnerability decreases.

If this hypothesis was found to be supported, this information could lend support to the design of interventions that work to increase a student's sense of self, as any gains in SOC would be correlated with an increase in protection from distress and suicidality.

While the current study found evidence of a statistically significant moderating effect of SOC on the relationship between acquired vulnerability to distress and suicide and past 12-month distress and suicide ($b = -.001$, $t(8941) = -3.46$, $p < .001$), this relationship appears to lack any practical importance ($\Delta R^2 = .001$, $F(1, 8934) = 11.97$, $p < .001$). The inclusion of SOC as a moderating variable accounts for only a 0.1% change in the relationship between acquired vulnerability to distress and suicide and past 12-month distress and suicide. The statistical significance of this interaction can be credited to the large sample size used in this study, and does not reflect a real world functional significance. However, the analysis for this question was able to confirm the previously found (Brownson et al., 2016) negative correlation between SOC and a student's placement along the distress and suicide continuum. The current study similarly observed that as a student's SOC decreased, their likelihood to be higher along the distress and suicidality continuum also increased.

Although this study was not able to demonstrate a meaningful moderating impact of SOC on the relationship between acquired vulnerability to distress and suicide and past 12-month placement along the distress and suicidality continuum, the confirmation of previous findings provides some important insights for college suicide prevention programs. First, although there is not an additional increase in the protective quality of SOC for students with high sense of coherence moving to even higher coherence, this also means that a small increase in a student's less robust SOC will benefit the student just as much as it would a student already possessing a more robust SOC. This means that for a population-level intervention, SOC might be a particularly fruitful focus, since improving a student's sense of themselves will equally benefit both students who are at

higher risk for distress and suicidality, and those who are not. This indicates that SOC might be a desired target for intervention when the goal of treatment is to improve the mental health of an entire population, not just students at higher risk for distress and suicidality.

Sexual Orientation's Moderating Effect on the Relationship between Adverse Childhood Experiences and Distress and Suicide

This study also sought to examine if a student's sexual orientation might impact the observed relationship between acquired vulnerability to distress and suicidality (as measured by the ACE score) and the student's placement over the past 12-months along the distress and suicide continuum. This study hypothesized that sexual orientation would have a moderating effect on this relationship, and that as LGB cisgender students experience more negative early-life events, they would become increasingly likely to experience higher rates of past 12-month distress and suicidality. This hypothesis was proposed as one explanation for the increase rates of distress and suicidality that LGB cisgender students experience when compared to their heterosexual cisgender peers.

The analysis revealed a statistically significant moderating effect for sexual orientation ($b = .04$, $t(9167) = 2.37$, $p = .02$). However, the added predictive quality gained by the inclusion of sexual orientation as a moderating variable does not appear to add a meaningful contribution to this observed relationship, as the predictive model changed by approximately 0.1% ($\Delta R^2 = .001$, $F(1,9161) = 5.64$, $p = .02$). Similar to the analysis discussed above, the statistical significance found for sexual orientation's moderating impact is attributable to the large sample size used in this study, and does not

appear to represent a meaningful contribution to the observed relationship between the ACE score and past 12-month distress and suicidality.

This finding suggests that increased rates of distress and suicidality among LGB cisgender college students is not due to a negative impact of early trauma that increases over time, where early acquired vulnerability to distress and suicidality puts them at greater risk for future distress and suicidality compared to their heterosexual peers. Instead, the increased rates of distress and suicidality found in the LGB cisgender college population reflect these students' greater likelihood of having experienced early trauma in contrast to heterosexual cisgender college students. It is important to note that many other factors contribute to the increased rates of distress and suicidality within the LGB cisgender college population, such as experiencing negative early-life events like physical and verbal abuse, harassment, rejection, and prejudice by the wider community (D'Augelli, Grossman, & Starks, 2006; Huebner, Rebchook, & Kegeles, 2004). However, it is meaningful to observe that these negative early-life events similarly impact both LGB cisgender students and their heterosexual cisgender peers, at least for the areas captured in the ACE scale.

Sexual Orientation's Moderating Effect on the Relationship between Adverse Childhood Experiences and Sense of Coherence

The final moderating relationship examined in this study looked to see if sexual orientation moderates the relationship between acquired vulnerability to distress and suicidality (as measured by the ACE scale) and the development of SOC. As discussed earlier, this study found that SOC scores differed by sexual orientation. This prompted further probing to determine if the relationship between SOC and sexual orientation may

be attributable to differences in how negative early childhood experiences impact LGB cisgender students' development of sense of self. Finding evidence of this might give some indication of why LGB cisgender college students report lower levels of SOC in contrast to their heterosexual cisgender peers.

Although the current study found a statistically significant moderating effect of sexual orientation ($b = -.74$, $t(9042) = -5.10$, $p < .001$), this does not appear to indicate a functionally relevant predictive significance ($\Delta R^2 = .003$, $F(1, 9036) = 25.99$, $p < .001$).

In this model, when sexual orientation is added as a moderator, the predictive quality of the observed relationship is only improved by 0.3%. As with the two previously discussed moderating relationships, the statistical significance of this finding is attributable to the large sample size recruited for this study and does not reflect a meaningful effect of sexual orientation. It is worth noting, that when compared to the previous two moderating relationships examined in the study, this moderator had the largest impact on the overall change in R^2 scores ($\Delta R^2 = .003$, compared to $\Delta R^2 = .001$ for the two other moderators). Interestingly, this relationship was also observed in the opposite direction than originally hypothesized, with increased ACE scores having a higher negative impact on heterosexual cisgender students development of SOC, when compared to their LGB cisgender peers. This suggests that heterosexual cisgender students' appear to be at greater risk for their SOC development, with higher scores on the ACE scale causing more SOC disruption, in contrast to LGB cisgender students. Although obtaining this result is interesting, the finding is not interpretable given the weakness of the observed impact.

What this finding does demonstrate, however, is that the sense of self construct, SOC, operates in a similar fashion in its development for both LGB and heterosexual cisgender college students, when related to the ACE scale. Therefore, differences in observed SOC scores for the LGB and heterosexual cisgender student populations appear to be the result of different levels of exposure to adverse childhood experiences and other developmental factors that were not identified in this study. Although not exhaustive, the finding that sexual orientation does not meaningfully moderate the relationship between the ACE scale and SOC, suggests that an intervention designed to bolster SOC in the wider student population may be impactful for a diverse representation of sub-population groups. Further research is required, however, before the validity of this hypothesis can be supported with any high degree of confidence.

Studies Impactions for Models of Suicide

This study found that there were differing rates of distress and suicidality within the LGB cisgender college population, when compared to the cisgender heterosexual college population. This finding was consistent with previous literature that has suggested that sexual minorities are at greater risk for experiencing suicidality when compared to the wider population (Russell & Joyner, 2001; Garofalo, et al., 1998; King et al., 2000; Haas et al., 2011). However, this study also demonstrated that while rates of distress and suicidality are increased within the LGB cisgender college population, this trend appears to be due to the increased likelihood for this population to have experienced early negative life traumas, as captured in the ACE scale, when these students are compared to the wider cisgender heterosexual student population. Furthermore, cisgender LGB college students' sense of self, as measured by SOC, did not appear to

operate in a novel manner, when examined as a protective factor for developing suicidality, as compared to the wider cisgender heterosexual student sample. These findings are interesting when we consider Joiner's "Interpersonal-Psychological Theory of Suicidal Behaviors" (2005b), since the results appear consistent with the expectations outlined in his model. Since this study failed to find that sense of self operated in a meaningfully different way between heterosexual and LGB cisgender students, this highlights the importance of how early childhood experiences and stability (as captured by the ACE scale) impact future distress and suicidality. This study found that the differences in rates of distress and suicidality between heterosexual and LGB cisgender college students was best captured by increased rates of early childhood abuse or trauma. This is consistent with Joiner's model, and although his theory was not tested directly by this study, his model appears to be supported.

The results of this study are also interesting to consider within Baumeister's (1990) "Escape from Self" theory of suicide. While this study's results are consistent with Baumeister's model for the development of suicide, it is interesting to consider how his model of internalizing/externalizing impact on suicidality may be playing out in the sexual minority community. Before conducting this study, it might have been possible to theorize that differences in internalizing/externalizing may be present between LGB and heterosexual cisgender students. This might have been due to the way being rejected based on one's sexual orientation might shift their locus of control to either more external or internal, and this change might then impact rates of experienced suicidality. However, while this was not tested directly, this study failed to find a meaningful moderating impact on rates of suicidality based on sexual orientation, when examining the

relationship between the ACE score and past 12-month rates of distress and suicidality. This finding suggested that it was the increased experiences of childhood trauma that LGB cisgender students faced that contributes to the differing rates of suicidality, and not some difference in how LGB cisgender students internalize/externalize that trauma, or that the trauma impacts them in a novel way. While these results are only speculative based on this study's findings, this may be a productive area of inquiry for future research.

Implications for Suicide Prevention Programs on College Campuses

The information gleaned from the current study contributes to the existing body of research that highlights the increased levels of suicidality members of the sexual minority population face, both in and outside of the college environment. Additionally, this study expands on the current understanding of suicidality within the LGB cisgender college student population to consider not only the current and acute thoughts of suicide students may be experiencing, but also their experiences of distress that may precede and build into suicidality over time. By looking at suicidality as a continuum of thoughts and behaviors in the LGB cisgender college population, this study opens up the possibility for interventions not only at the highest levels of active suicidality, but at all levels of distress along a wider continuum of experiences.

Previous research by Drum and Denmark (2011) has identified several forms of college student mental health interventions that focus on suicide prevention on college campuses. These intervention strategies may take both a preventative and response approach to treatment and recovery, and fall into the following categories: ecological prevention, proactive prevention, early intervention, treatment and crisis intervention, and relapse prevention interventions (Drum and Denmark, 2011). This model developed by

Drum and Denmark (2011) identified a range of intervention levels that move from population level interventions to individual level interventions. The goal of developing a wide range of intervention approaches, moving from the population level to the individual level, is to better reach students at all levels of distress and suicidality, and help prevent students from moving further down the distress and suicidality continuum. This model is thus particularly relevant to the current study's findings, given that this study has identified the need for a wide range of possible interventions to address the increased distress and suicidality that members of the LGB cisgender college community may be experiencing.

The first level of intervention identified by Drum and Denmark (2011) is the ecological interventions zone. Ecological interventions focus on changing environmental factors in order to promote better overall mental health and well-being in the entire college population, including the reduction or removal of environmental factors which corrode mental health and contribute to increases in distress and suicidality. According to Drum and Denmark (2011), effective ecological interventions must be integrated into the wider curriculum structure and campus culture of a college or university. These interventions are made possible at the level of organizational policy and environmental structuring which require the support of higher-level administrators and policy-makers at college campuses. Thus it is important to stress the potential for student impact that is inherent in an ecological intervention approach.

The potential for ecological interventions rests in the fact that these interventions are self-renewing and are targeted at the population level. As these interventions become part of the campus climate, they reach every entering class without the need for college

students to take any specific action beyond matriculating in order to benefit from the intervention. This level of intervention is intended to have a wide-reaching and long-lasting effect on the overall college environment. For example, many universities promote first-year experience programs in order to build a sense of connectedness and belonging among students, such as the University of Texas at Austin's First-Year Interest Group (FIG) program. The FIG program places first year students in courses that are designed to be less academically challenging and more focused on helping them adjust to the university environment as they connect with fellow students on social and academic levels.

A possible ecological intervention that could benefit members of the sexual minority student community, would be to modify the learning goals of required freshman interest courses and required classes to include more education around the importance of seeking and creating community while in college, the usefulness of identifying a possible mental health resource you could utilize if distressed (particularly if you have a history of recent previous treatment), promoting activities in class that teach self-compassion or self-care strategies, and promoting overall student well-being. As students are taught more of these stress reduction skills earlier on in their college experiences, this intervention helps make them less likely to progress along the distress and suicidality continuum.

The current study could be used to promote similar ecological change in the college setting, providing administrators with information about the increased vulnerability to distress and suicide, and current distress and suicidality, that are present within the LGB cisgender college population. By promoting and disseminating this type

of information within the administrative community, it may be possible to garner continuing support for further campus-wide initiatives and interventions, including the necessary resources to provide ongoing suicide prevention interventions to address the unique needs of the LGB cisgender student population.

Furthermore, this study helps support the construct of SOC as a possible target for population-level interventions, based on the findings which demonstrate that SOC appears to have a similar impact on the relationship between acquired vulnerability for distress and suicidality, and past-12 month distress and suicide for both LGB students and heterosexual cisgender students. This finding suggests that building interventions into the academic environment that are targeted at helping bolster a student's sense of self, may be useful as a population-level approach, even when considering the diversity in college enrollment.

A possible ecological intervention that might be utilized to promote SOC would be to start disseminating research on the elements of identity that SOC promotes (e.g. manageability, meaningfulness, comprehensibility) (Aaron Antonovsky, 1979) to members of the administrative community, educating them on research demonstrating that sense of self can play a part in mental health and academic outcomes. By promoting this type of information, this makes it easier to secure future funding for sense of self promoting interventions, simultaneously promoting a community that is more savvy and informed about these types of programs.

The second level of prevention zone identified by Drum and Denmark (2011) is the “proactive prevention” level. This level of intervention is designed to promote resilience, self-care, and early coping strategies within the student population so that

when students encounter a stressor, they are less likely to advance down the distress and suicidality continuum, and are therefore less likely to require clinical intervention to address their distress. The proactive prevention level of intervention can be used to target either the entire college population, or can be refined to target subsets of the larger student population, such as the sexual minority community. The goal then for proactive prevention interventions is to help identify and address vulnerabilities within the college environment that may put students at future risk for developing distress and suicidality during their college experience (Drum and Denmark, 2011). It is important to note, that unlike ecological prevention interventions which are self-renewing, proactive prevention interventions must be maintained over time and require continued planning, directed input and resources. Examples of this type of intervention include college counseling centers providing outreach presentations and workshops focused on stress reduction and anxiety management, universities promoting and supporting student groups and supportive communities, and the dissemination of information to incoming students on the availability of self-care, academic, and mental health support resources on their campus.

Based on the findings in this study, some proactive prevention interventions provided by colleges and universities might include psychoeducation on the importance of students building and maintaining their sense of self while in school. This might include basic psychoeducation that defines “sense of self” and helps students to see how their relationship with themselves is not static, but flexible, capable of being changed and improved on over time. This may also include interventions designed to help students explore how they relate to themselves, such as by promoting things like self-compassion

(Raes et al., 2011) and Mindfulness, and by providing workshops designed around Aaron Antonovsky's (1979) three core components of Sense of Coherence: comprehensibility, manageability, and meaningfulness. This might include workshops that help students identify and understand the challenges they are expected to face while in college and help them develop plans for meeting these challenges, identifying resources they can utilize, and learning strategies to be a successful student. For example, students might participate in a workshop on the major milestones they will face in their program, or they might enroll in a study skills class which prepares them for the college setting and helps student's realize they may need to change previous study habits utilized in high school. These types of workshops might also focus on promoting students' sense of meaning while in college, possibly through discussions on the implications of their major/area of study and their personal goals, or on how their education may be shaping their personal identity development.

By creating workshop, outreaches, and class activities designed to help promote either sense of self or identity development, these interventions may help students build on their internal resources, with the intent of protecting them against future distress and suicidality. Interventions and workshops that are marketed particularly to sexual minority students may be especially useful in this goal, as this study has shown that many sexual minority students in the college environment have lower levels of the sense of self factor SOC compared to their heterosexual peers. These types of interventions would then promote resilience in students to the stressors presented to them over the course of their academic career, and may reduce the rates of negative mental health outcomes later on, including suicidality. It may be of particular use then to partner with student groups that

support sexual minority students, as a way to provide additional outreach and workshop programming to this community, that is specifically tailored to promoting a stronger sense of self, and positive identity development. Proactive interventions introduced in this way would serve to not only bolster the resilience of an at-risk sub-population, but would also serve to create a more healthy campus community overall.

Moving beyond the realm of population-level prevention, Drum and Denmark (2011) describe the next level of intervention as those falling into the “clinical intervention zone”, the first of these being early intervention. The clinical intervention zone differs from the prevention zone by changing the focus from promoting prevention to distress and suicidality within the wider population to targeting sub-populations of students of concern who may either be at higher risk for developing suicidality or may be currently experiencing distress and suicidality. The clinical intervention zone can therefore be thought of as the more traditional type of clinical intervention performed by college counseling centers. Examples of this might include creating psychoeducational materials, outreach presentations, and student workshops designed to help students identify and cope with early signs of distress and suicidality. A possible early intervention approach that could be created for the sexual minority population involves providing suicide prevention outreach that helps students talk with each other about their experiences of distress and suicidality, encouraging peer-to-peer discussions on the ways they have learned to manage these feelings in the past. These types of workshops may also provide anxiety and stress training, and may include materials designed to bolster and promote an individual identity development and SOC. In addition, it might be possible to create on-line assessment materials that help students identify the type of

distress they may be experiencing, as well as possible treatments, and these materials could also include psychoeducation around sense of self factors. These materials could then be marketed to the wider campus community.

Early clinical interventions may also benefit from targeting students who are entering college with higher rates of vulnerability to distress and suicidality. Previous research has shown that, for many students, their first instances of suicidality happen before the college environment (Drum et al. 2009). Many at-risk students may have already experienced suicidal distress, and some of those have previously received supportive services for their mental health concerns. This suggests that for a proportion of students entering college, these individuals are already aware of the vulnerability they possess to future suicidality. A possible early intervention approach may include creating educational resources that are directly targeted at the pre-freshman students with some level of risk for suicidality, educating them on the importance of finding mental health support before they enter the college setting. This might include things like encouraging students who have previously benefited from therapy to identify clinical resources they can utilize while in college, should they need mental health support during their college experience.

When considering this study's findings that demonstrate LGB cisgender students are entering college with higher rates of early life disruption compared to cisgender heterosexual students, it may be of particular importance to make sure that all mental health providers on a college campus have tailored training to work with the multicultural/diversity considerations that are present within the sexual minority community. By educating and training providers on the unique experiences and factors

that the sexual minority community possesses, this can help provide more customized and effective treatment for students currently experiencing increased distress or suicidality. It may also be helpful to educate mental health providers on differences in sense of self that are present between LGB and heterosexual cisgender students, helping these providers identify ways to promote connection, understanding, and meaningfulness. This may include strategies for helping students identify possible challenges they may face, such as coming out, or help them identify possible places to build community on campus, such as through student groups. It may also include the use of targeted interventions, such as CBT, Self-Compassion, or Mindfulness, which may help them better manage their stress in the future.

The next phase of clinical intervention is the treatment and crisis intervention phase (Drum and Denmark, 2011). This stage of intervention is where college counseling centers are currently most likely to intervene with a student. At this level, students have entered an acute suicidal crisis and are best treated by some form or combination of community and family support, therapy, or medical intervention. This stage often includes things like connecting students with counseling center resources, assessing for their level of suicide risk and intentionality, and creating safety plans or targeted interventions to help reduce their level of suicidal ideation and their likelihood to die by suicide. Based on this studies findings, counseling center staff should be trained and aware of the unique experiences regarding distress and suicidality within the LGB cisgender student community, since a higher proportion of LGB cisgender students have reported experiences of suicidality requiring his stage of intervention, compared to their heterosexual cisgender peers.

The last form of intervention that is described by Drum and Denmark (2011) is lapse and relapse prevention, at this stage of intervention the goal is to help prevent people who have received support for their suicidal distress from relapsing and becoming suicidal again. This may involve helping an individual identify some of the risk factors, or lack of protective factors, which may have exacerbated their suicidal experience. For example, at this stage it may be useful to identify ways that a student can build their internal resilience to distress and suicidality, such as through bolstering their sense of self, or SOC, and help them identify ways of managing their distress earlier on the distress and suicidality continuum.

Study Strengths, Limitations, and Possible Future Research

This study is the first (to the author's knowledge) to examine the relationship between LGB cisgender college students, adverse childhood experiences, the sense of self factor Sense of Coherence, and the distress and suicidality continuum. This study also expands the current research on college distress and suicidality, adding to the literature by considering suicidal thoughts on a continuum of distress and suicidality, rather than as a dichotomous state of current suicidal thinking, in order to refine our understanding of the incremental changes students experience as they develop suicidality.

Additionally this study hopes to add a meaningful contribution to the current literature examining distress and suicidality in the sexual minority community. This study was able to address some of the past limitations of research on the sexual minority community by examining sexual orientation separately from gender identity and by focusing on the college population, in order to examine how this subset of the wider sexual minority population currently experiences distress and suicidality. This study also

adds to the resources available to college suicide prevention programs by deepening our understanding of the increased vulnerability to distress and suicidality LGB cisgender college students enter college with compared to their heterosexual cisgender peers. Additionally, this current study contributes to the current literature on college suicide prevention by exploring the utility of SOC as a protective quality for distress and suicidality and helping identify the sense of self construct SOC as a possible area for future interventions focused on distress and suicidality reduction.

Furthermore, this study also adds to the current research being conducted by Brownson et al. (2016), which is examining the validity and utility of the “Distress and Suicide Continuum” as a possible new way to measure and understand experiences of distress and suicidal thinking in the college population. This study adds to the growing literature on this construct by highlighting the distress and suicide continuum’s clinical utility with the LGB cisgender college population. The current findings provide support for the use of this scale to better refine our understanding of suicidality, helping break away from earlier dichotomous (yes/no) conceptualizations of suicidal distress. This lays the foundation for future research into Aaron Antonovsky’s (1979) salutogenic construct, Sense of Coherence, as a possible means to prevent suicides on college campuses. This study has provided support for conceptualizing SOC as a sense of self construct that appears to develop similarly for heterosexual and LGB cisgender students, and based on this study’s findings, appears to also be less impacted by sexual orientation and more by experiences of early trauma and abuse. Though not exhaustive, this finding demonstrates support for a more universal view of SOC development, in that SOC develops similarly for various groups. As discussed earlier, this supports the utility of a population-level

intervention for SOC with the potential to benefit members of many groups. However, this study should primarily be considered exploratory in nature, leaving the door open for further research on the construct of SOC and its place in college suicide prevention.

This study has some limitations that need to be considered when reviewing the results. Like all voluntary questionnaires, it is important to note that there exists the possibility for selection bias in the sample, as only students who were willing to respond to this survey are included in this analysis. While it is assumed that this survey was able to capture a representative sample of college students, it is possible that one or more of the variables studied were effected by the nature of this being a voluntary sample. In addition, it is possible that the sample does not reflect the average experiences of the wider student population from which it was drawn.

Furthermore, it is important to remember that the sample drawn for the current study was intentionally collected as an over-representation of first year undergraduate students. Because of this, the sample may have been skewed to over-represent the experiences of this subpopulation when compared to the other types of student experiences. In addition, although the demographic makeup of this study appears to be similar to other national samples of college students (ACHA-NCHA, 2014; Drum et al., 2009; Brownson et al., 2016), it is possible that White/European American students may have been overrepresented in the study sample. Furthermore, women appear to be overrepresented in this study's sample, when compared to demographics of the wider student population (U.S. Department of Education, National Center for Education Statistics, 2016), and this may have influenced the proportion of sexual minority students sampled who identified as lesbian or bisexual, compared to gay.

The way that sexual orientation was examined in this study should also be considered when interpreting the analyses. Although this study intended to examine the impact of sexual orientation, and not gender identity, when looking at distress and suicidality, this may have unintentionally excluded students who identify as LGB but not as cisgender. Furthermore, this study limited its analysis of sexual minorities to students who identified as either lesbian, gay, or bisexual, and did not include students who identified as “questioning” or as “other, please specify.” While this was done to insure the study was accurately capturing members of the sexual minority community, it may have also inadvertently excluded some sexual minority students. The higher than expected number of students who identified as “other, please specify” also appears to be in part because of the changing nomenclature used by students to identify their sexual orientation and gender identity, and expand out of the more limited LGB and heterosexual cisgender categories, to more nuance and specific sexual orientation identities. Because of this, it is possible that some students who traditionally may have identified as LGB in the past, may have instead identified as “other, please specify” in this sample, as a way to better clarify their unique interaction of romantic/sexual attraction, gender identity, and sexual behaviors. These students then, while possibly self-identifying as a member of the sexual minority community, were not included in this study’s sample.

An additional limitation to this study was present in the self-report nature of the survey questionnaire. Self-reported measures by their very nature are susceptible to the response biases of the respondent. It is possible that some respondents did not answer the survey in an honest or accurate manor, intentionally or unintentionally, or some were

unable to accurately recall the life events addressed in the survey. Past research has shown that a wide range of factors can impact and decrease the accuracy of self-report measures, such as the language ability of the responder (Schwarz, 1999) or the unclear wording of the study questions (Schuman & Presser, 1981).

Furthermore, this study asked participants to accurately recall distressing feelings and events they had experienced not only over their past year, but over the course of their life, as captured in the ACE scale. It is possible that participants' memories of these experiences could be repressed or limited, or they may feel unwilling to report them on a questionnaire. Furthermore, it is possible that when individuals reported on their experiences of distress and suicidality over the past year, they may have underreported their most distressed thinking and behaviors, if they were not currently experiencing their highest level of distress at the time of the survey.

Another possible limitation may rest in the study's use of the distress and suicidality continuum (Brownson et al., 2016), as this measure may have some limitations in how it captures these types of experiences. In this study, it was assumed that a student's highest score along the continuum represented their highest level of suicidal distress. However, a small subset of the sample did not answer the continuum questions in a continuous manner, and endorsed a high distress item, but not the lower distress items before it. It is unclear how these students then match to the continuum model. Furthermore, this continuum did not capture experiences of students who had attempted suicide or the severity of their attempts. Although suicide attempts were included in this paper as a measure of suicidality, it may benefit the development of the

Distress and Suicidality Continuum (Brownson et al., 2016) by expanding this measure to include this extreme end of suicidal behaviors.

Additionally, some limitations exist in the ACE scale as a measure for a students acquired vulnerability to distress and suicidality. This is in part because the theoretical construct of “acquired vulnerability to distress and suicidality” is not easily captured in a single measure of early childhood experiences. Although the ACE scale does appear to be thematically similar to this study's conceptualization of acquired vulnerability to distress and suicidality, scores on this scale can only be viewed as a rough approximation of a person's acquired vulnerability, and do not represent a comprehensive capturing of these types of experiences. Because of this, the results from this study using the ACE scale should be considered exploratory in nature, and further research should be conducted to further refine our understanding of how acquired vulnerability to distress and suicide is impacting students’ college experiences.

When interpreting the results of this study it is also important to remember that the correlational nature of this study does not identify any causal relationships between the study variables. Though some of the variables, like the ACE scale’s measurement of acquired vulnerability to distress and suicidality, are hypothesized to precede the development of other variables, like SOC, the study design used in this dissertation was only able to examine the correlation between these variables.

While this study was able to look at the relationship between sexual orientation, acquired vulnerability to distress and suicidality, past 12-month distress and suicidality, and the sense of self factor SOC, more research is needed to explore the relationship between these variables. In particular, while SOC has shown to be a possible target for

future suicide prevention interventions, further research will provide a better understanding of how to best bolster students' sense of self while they are in college and how these effects will influence their development of future distress and suicidality. While this study has taken the first step in identifying how SOC is represented within the LGB college community, future research might focus on how best to support this sense of self factor in the college student population.

The results obtained from this study are intended to help support college counseling center staff, administrators, and researchers in their work to prevent distress and suicide on college campuses. The particular focus on members of the LGB student community also is intended to draw attention to the experiences of distress and suicidality that are currently happening in this branch of the wider student population. Future research may identify methods of reducing this distress and suicidality, such as ways to strengthen a student's sense of self or reducing the impact of their preexisting acquired vulnerability to distress and suicide if we are going to make the college environment a safe and productive one for all our students. While this study adds to the knowledge needed to help make our campuses safer, this work is far from complete until students from all backgrounds who experience distress and suicidality, at all intensities, are supported as they engage in the challenge of their academic education.

Appendix A

DEMOGRAPHICS QUESTIONNAIRE

- 1) What is your age?
 1. Dropdown menu (18-95)
- 2) How do you identify?
 1. Male
 2. Female
 3. Transgender
 4. Other, please specify:
- 3) How would you describe your sexual orientation?
 1. Heterosexual
 2. Gay or Lesbian
 3. Bisexual
 4. Questioning
 5. Other, please specify:
- 4) With the understanding that coming out is a process, if you consider yourself to have come out about your *sexual orientation*, how long ago did you do so?
 1. <6 months ago
 2. 6–12 months ago
 3. 1–3 years ago
 4. 3–5 years ago
 5. 5 or more years ago
 6. I have not come out
 7. I am likely to come out within the next year
 8. Other, please specify
- 5) What is your grade classification?
 1. Freshman
 2. Sophomore
 3. Junior
 4. Senior
 5. Medical Student
 6. Law Student
 7. Graduate Student or Other Professional Student
 8. Non-degree-seeking Student
 9. Other, please specify:
- 6) With the understanding that these categories might be limiting, how do you typically describe yourself? (Select all that apply.)
 1. African American, of African descent, African, of Caribbean descent, or Black
 2. Asian or Asian American (e.g., Chinese, Japanese, Korean)

3. Caucasian, White, of European descent, or European (including Spanish)
4. Hispanic, Latino or Latina (e.g., Cuban American, Mexican American)
5. Middle Eastern or East Indian (e.g., Pakistani, Iranian, Egyptian)
6. Native American (e.g., Dakota, Cherokee) or Alaska Native
7. Native Hawaiian or other Pacific Islander (e.g., Samoan, Papuan, Tahitian)
8. Other, please specify:

Appendix B

ADVERSE CHILDHOOD EXPERINCE SCALE

Following are some questions about events that happened during your childhood. This information will allow us to better understand problems that may occur early in life, and it may help others in the future. This is a sensitive topic, and some people may feel uncomfortable with these questions. Please keep in mind that you can ask me to skip any question you do not want to answer. All questions refer to the time period before you were 18 years of age. Now, looking back before you were 18 years of age—

1) Did you live with anyone who was depressed, mentally ill, or suicidal?

1. Yes
2. No
3. Don't know / Not sure

2) Did you live with anyone who was a problem drinker or alcoholic?

1. Yes
2. No
3. Don't know / Not sure

3) Did you live with anyone who used illegal street drugs or who abused prescription medications?

1. Yes
2. No
3. Don't know / Not sure

4) Did you live with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility?

1. Yes
2. No
3. Don't know / Not sure

5) Were your parents separated or divorced?

1. Yes
2. No
3. Parents never married

4. Don't know / Not sure

6) How often did your parents or adults in your home ever slap, hit, kick, punch, or beat each other up?

1. Never
2. Once
3. More than once
4. Don't know / Not sure

7) Before age 18, how often did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way? Do not include spanking. Would you say—

1. Never
2. Once
3. More than once
4. Don't know / Not sure

8) How often did a parent or adult in your home ever swear at you, insult you, or put you down?

1. Never
2. Once
3. More than once
4. Don't know / Not sure

9) How often did anyone at least 5 years older than you, or an adult, ever touch you sexually?

1. Never
2. Once
3. More than once
4. Don't know / Not sure

10) How often did anyone at least 5 years older than you, or an adult, try to make you touch them sexually?

1. Never
2. Once
3. More than once
4. Don't know / Not sure

11) How often did anyone at least 5 years older than you or an adult force you to have sex?

1. Never
2. Once
3. More than once
4. Don't know / Not sure

Appendix C

DISTRESS AND SUICIDALITY CONTINUUM AND SUICIDALITY QUESTIONS

1) During the past 12-months, did you have any thoughts similar to the following? (Select all that apply.)

- | | | |
|-----|----|-------------------------------|
| Yes | No | 1) This is all just too much. |
| Yes | No | 2) I wish this would all end. |
| Yes | No | 3) I have to escape. |
| Yes | No | 4) I wish I were dead. |
| Yes | No | 5) I want to kill myself. |
| Yes | No | 6) I might kill myself. |
| Yes | No | 7) I will kill myself. |

2) During the past 12 months, have you seriously considered attempting suicide?

Yes No

3) During the past 12 months, did you attempt suicide?

Yes No

4) (If Q3 = Yes) How many suicide attempts did you make in the last 12 months?

- 1) 1
- 2) 2
- 3) 3
- 4) 4
- 5) 5 or more

Appendix D

13-ITEM SENSE OF COHERENCE QUESTIONNAIRE

Here is a series of questions relating to various aspects of your lives. Each question has seven possible answers. Please mark the number that expresses your answer, with numbers 1 and 7 being the extreme answers. If the words under 1 are right for you, circle 1; if the words under 7 are right for you, circle 7. If you feel differently, circle the number which best expresses your feeling. Please give only one answer to each question.

1. Do you have the feeling that you don't really care about what goes on around you?

1	2	3	4	5	6	7
very seldom or never						very often

2. Has it happened in the past that you were surprised by the behavior of people whom you thought you knew well?

1	2	3	4	5	6	7
never happened						always happened

3. Has it happened that people whom you counted on disappointed you?

1	2	3	4	5	6	7
never happened						always happened

4. Until now your life has had

1	2	3	4	5	6	7
no clear goals or purpose at all						very clear goals and purpose

5. Do you have the feeling that you're being treated unfairly?

1	2	3	4	5	6	7
very often						very seldom or never

6. Do you have the feeling that you are in an unfamiliar situation and don't know what to do?

1	2	3	4	5	6	7
very often						very seldom or never

7. Doing the thing you do every day is

1		2	3	4	5	6	7
a source of deep pleasure and satisfaction							a source of pain and boredom

8. Do you have very mixed-up feelings and ideas?

1	2	3	4	5	6	7
very often						very seldom or never

9. Does it happen that you have feelings inside you would rather not feel?

1	2	3	4	5	6	7
very often						very seldom or never

10. Many people – even those with a strong character – sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past?

1	2	3	4	5	6	7
never						very often

11. When something happened, have you generally found that:

1	2	3	4	5	6	7
you overestimated or underestimated its importance						you saw things in the right proportion

12. How often do you have the feeling that there's little meaning in the things you do in your daily life?

1	2	3	4	5	6	7
very often						very seldom or never

13. How often do you have feelings that you're not sure you can keep under control?

1	2	3	4	5	6	7
very often						very seldom

Appendix E
UNDERSTANDING STUDENT DISTRESS & ACADEMIC SUCCESS
2016 SURVEY

Q01	“Please provide your age in years:”	(dropdown menu [18 to 95]; blank = no response)
Q02	“With the understanding that these categories might be limiting, how do you typically describe your gender identity?”	blank = no response or skipped 1 = “Female” 2 = “Male” 3 = “Transgender” 4 = “Other, please specify:”
Q02_4u	(no prompt; provided for “Other, please specify:” response to Q02_4) [Q02_4 = 1]	(text; blank = no response or skipped)
Q03	“How would you describe your sexual orientation?”	blank = no response or skipped 1 = “Heterosexual” 2 = “Gay or Lesbian” 3 = “Bisexual” 4 = “Questioning” 5 = “Other, please specify:”
Q03_5u	(no prompt; provided for “Other, please specify:” response to Q03_5) [Q03_5 = 1]	(text; blank = no response or skipped)
Q04	“With the understanding that coming out is a process, if you consider yourself to have come out about your <i>sexual orientation</i> , how long ago did you do so?” [Q03 = 2, 3, 4, or 5]	blank = no response or skipped 1 = <6 months ago 2 = 6–12 months ago 3 = 1–3 years ago 4 = 3–5 years ago 5 = 5 or more years ago 6 = I have not come out 7 = I am likely to come out within the next year 8 = “Other, please specify”
Q04_8u	(no prompt; provided for “Other, please specify:” response to Q04_8) [Q04_8 = 1]	(text; blank = no response or skipped)
Q05	“With the understanding that these categories might be limiting, how do you typically describe yourself? (Select all that apply.)” Q05_1= “African American, of African descent, African, of Caribbean descent, or Black”	blank = no response or skipped 1 = TRUE; 2 = FALSE

	<p>Q05_2 = “Asian or Asian American (e.g., Chinese, Japanese, Korean)”</p> <p>Q05_3 = “Caucasian, White, of European descent, or European (including Spanish)”</p> <p>Q05_4 = “Hispanic, Latino or Latina (e.g., Cuban American, Mexican American, Puerto Rican)”</p> <p>Q05_5 = “Middle Eastern or East Indian (e.g., Pakistani, Iranian, Egyptian)”</p> <p>Q05_6 = “Native American (e.g., Dakota, Cherokee) or Alaska Native”</p> <p>Q05_7 = “Native Hawaiian or other Pacific Islander (e.g., Samoan, Papuan, Tahitian)”</p> <p>Q05_8 = Other, please specify:”</p>	
Q05_8u	<p>(no prompt; provided for “Other, please specify:” response to Q05_8)</p> <p>[Q05_8 = 1]</p>	(text; blank = no response or skipped)
Q06	<p>“What is your religious or spiritual preference? (Select all that apply.)”</p> <p>Q06_1= “None”</p> <p>Q06_2 = “Agnostic”</p> <p>Q06_3 = “Atheist”</p> <p>Q06_4 = “Buddhist”</p> <p>Q06_5 = “Christian (Catholic, Evangelical, LDS, Protestant, etc.)”</p> <p>Q06_6 = “Hindu”</p> <p>Q06_7 = “Jewish”</p> <p>Q06_8 = “Muslim”</p> <p>Q06_9 = “Native American spirituality/religion”</p> <p>Q06_10 = “Unitarian or Universalist”</p> <p>Q06_11 = “Other, please specify:”</p>	<p>blank = no response or skipped</p> <p>1 = TRUE; 2 = FALSE</p>
Q06_11u	<p>(no prompt; provided for “Other, please specify:” response to Q06_11)</p> <p>[Q05_11 = 1]</p>	(text; blank = no response or skipped)
Q07	<p>“From which of the following have you ever received counseling or mental health services? (Select all that apply.)”</p> <p>Q07_1 = “Counselor, therapist, psychologist, and/or social worker”</p> <p>Q07_2 = “Psychiatrist”</p> <p>Q07_3 = “Clergy”</p> <p>Q07_4 = “Other medical provider (e.g., physician, nurse practitioner”</p> <p>Q07_5 = “Alternative medical provider (e.g., acupuncturist, naturopathic doctor, massage therapist)”</p> <p>Q07_6 = “Other, please specify:”</p> <p>Q07_7 = “I have never received counseling or mental health services”</p>	<p>blank = no response or skipped</p> <p>1 = TRUE; 2 = FALSE</p>

Q07_6u	(no prompt; provided for “Other, please specify:” response to Q07_6) [Q07_6 = 1]	(text; blank = no response or skipped)
Q08	“Have you ever sought services from your college’s or university’s counseling center?”	blank = no response or skipped 1 = “Yes” 2 = “No”
Q09	“Have you served in the military?”	blank = no response or skipped 1 = “No” 2 = “Yes, and I have been deployed to an area of hazardous duty.” 3 = “Yes, and I have not been deployed to an area of hazardous duty.”
Q10	“Are you an international student?”	blank = no response or skipped 1 = “Yes” 2 = “No”
Q11u	“What is your country of origin?” [Q10 = 1]	(text; blank = no response or skipped)

Q12	<p>“Which of the following best describes you?”</p> <p>1 = “first-year undergraduate” 2 = “second-year undergraduate” 3 = “third-year undergraduate” 4 = “fourth-year undergraduate” 5 = “5+-year undergraduate student” 6 = “medical student” 7 = “law student” 8 = “graduate student or other professional student” 9 = “non-degree-seeking student” 10 = “other, please specify:”</p>	<p>blank = no response or skipped 1 = TRUE; 2 = FALSE</p>
Q12_10u	<p>(no prompt; provided for “Other, please specify:” response to Q12_11)</p> <p>[Q12_10 = 1]</p>	<p>(text; blank = no response or skipped)</p>
Q13	<p>“What is your current grade classification, based on the number of hours/credits you have <u>completed</u>?” [Q12_1 = 1 or Q12_2 = 1 or Q12_3 = 1 or Q12_4 = 1 or Q12_5 = 1]</p> <p>1 = freshman 2 = sophomore 3 = junior 4 = senior</p>	<p>blank = no response or skipped 1 = TRUE; 2 = FALSE</p>
Q14	<p>“How many academic years have you attended a college or university (including the current year)?” [Q12_1 = 1 or Q12_2 = 1 or Q12_3 = 1 or Q12_4 = 1 or Q12_5 = 1]</p>	<p>(dropdown menu [1, 2, 3, 4, 5, 6+]; blank = no response)</p>
Q15	<p>“Have you taken off one or more regular academic terms (e.g., not summer) since starting at your college or university?”</p> <p>[Q12_1 = 1 or Q12_2 = 1 or Q12_3 = 1 or Q12_4 = 1 or Q12_5 = 1]</p>	<p>blank = no response or skipped 1 = “No” 2 = “Yes, I chose to take time off” 3 = “Yes, my college/university required it for academic reasons” 4 = “Yes, my college/university required it for non-academic reasons”</p>
Q16	<p>“What is your field of study?”</p> <p>1 = “Natural Sciences (e.g. biology, chemistry, mathematics, physics)” 2 = “Humanities and Arts (e.g. English, literature, music, philosophy, theater studies)” 3 = “Engineering (e.g. computer science, biomedical engineering, civil engineering)” 4 = “Social Sciences (e.g. psychology, history, linguistics, women’s studies)” 5 = “Economics” 6 = “Policy (e.g. environmental science, political science,</p>	<p>blank = no response or skipped 1 = TRUE; 2 = FALSE</p>

	public policy studies)” 7 = “Law” 8 = “Medicine” 9 = “Other, please specify:”	
Q16_9u	(no prompt; provided for “Other, please specify:” response to Q16_9) [Q16_9 = 1]	(text; blank = no response or skipped)
Q17	“Did you transfer to this college or university from another institution?” [Q12_1 = 1 or Q12_2 = 1 or Q12_3 = 1 or Q12_4 = 1 or Q12_5 = 1]	blank = no response or skipped 1 = “Yes” 2 = “No”
Q18	“What is the highest level of education completed by either of your parents or significant caregivers?”	blank = no response or skipped 1 = “did not complete high school” 2 = “high school or high-school equivalent” 3 = “some college” 4 = “associate’s degree or technical training certificate” 5 = “bachelor’s degree” 6 = “some graduate or professional school after college” 7 = “Finished graduate or professional school (e.g., master’s degree, MD, PhD, law school)” 8 = “not sure”
Q19	“Do you consider yourself a first-generation college or university student?”	blank = no response or skipped 1 = “Yes” 2 = “No”
Q20	“Do you expect to graduate on schedule?” [Q12_1 = 1 or Q12_2 = 1 or Q12_3 = 1 or Q12_4 = 1 or Q12_5 = 1]	blank = no response or skipped 1 = “Yes, I plan to finish my degree in the typical amount of time (e.g. bachelor's degree in four years)” 2 = “No, I plan to finish my degree a year or more early” 3 = “No, I plan to take an extra year or more to finish my degree”
Q21_u	“As best you remember, what was your highest composite score on the SAT?” [Q12_1 = 1]	(text; blank = no response or skipped)
Q21b	“This SAT score is out of a total of”	blank = no response or skipped 1 = “1600 points” 2 = “2400 points” 3 = “I did not take this test”

Q22	<p>“As best you remember, what was your highest composite score on the ACT (out of 36)”</p> <p>[Q12_1 = 1]</p> <p>1 = “Score” 2 = “I did not take this test”</p>	<p>blank = no response or skipped 1 = TRUE; 2 = FALSE</p>
Q22_1u	<p>(no prompt; provided for “Score” response to Q22_1)</p> <p>[Q22_1 = 1]</p>	<p>(text; blank = no response or skipped)</p>
Q23	<p>“Which of the following categories represents your average grades in high school?”</p> <p>[Q12_1 = 1 or Q12_2 = 1 or Q12_3 = 1 or Q12_4 = 1 or Q12_5 = 1]</p>	<p>(dropdown menu [Mostly As; Mostly As and Bs; Mostly Bs; Mostly Bs and Cs; Mostly Cs; Mostly Cs and Ds; Mostly Ds; Mostly Fs]; blank = no response)</p>
Q24	<p>“What was your approximate high school rank?”</p> <p>[Q12_1 = 1 or Q12_2 = 1 or Q12_3 = 1 or Q12_4 = 1 or Q12_5 = 1]</p>	<p>(dropdown menu [top 1%; top 5%; top 10%; top 25%; 25-75%; bottom quartile (75-100%)]); blank = no response)</p>

Q25	<p>“Are you receiving need-based financial aid?”</p> <p>[Q12_1 =1 or Q12_2 = 1 or Q12_3 =1 or Q12_4 = 1 or Q12_5 = 1]</p>	<p>blank = no response or skipped</p> <p>1 = “Yes”</p> <p>2 = “No”</p>
Q26	<p>“What was your parents’ (or guardians’) approximate income before taxes last year?”</p> <p>[Q12_1 =1 or Q12_2 = 1 or Q12_3 =1 or Q12_4 = 1 or Q12_5 = 1]</p>	<p>(dropdown menu [less than \$30,000; \$30,000-\$39,000; \$40,000-\$59,000; \$60,000-\$79,000; \$80,000-\$99,000; \$100,000-\$149,000; \$150,000-\$199,000; \$200,000 or more; don’t know/prefer not to answer]; blank = no response)</p>
Q27	<p>“How would you rate your confidence about your (or your family’s) ability to pay for your education?”</p> <p>[Q12_1 =1 or Q12_2 = 1 or Q12_3 =1 or Q12_4 = 1 or Q12_5 = 1]</p>	<p>blank = no response or skipped</p> <p>1 = “I have no worries about meeting the costs of my education.”</p> <p>2 = “I have some worries about meeting the costs of my education, but I do not believe finances will keep me from graduating.”</p> <p>3 = “I have some worries about meeting the costs of my education, and I am concerned finances might keep me from graduating.”</p> <p>4 = “I have significant worries about meeting the costs of my education, and I am fairly sure finances will keep me from graduating.”</p>

<p>Q28</p>	<p>“For the following scale, please select the option that indicates how much you disagree or agree with each of the statements.”</p> <p>Q28_1 = “I tend to bounce back quickly after hard times.” Q28_2 = “I have a hard time making it through stressful events.” Q28_3 = “It does not take me long to recover from a stressful event.” Q28_4 = “It is hard for me to snap back when something bad happens.” Q28_5 = “I usually come through difficult times with little trouble.” Q28_6 = “I tend to take a long time to get over set-backs in my life.”</p>	<p>blank = no response or skipped 1 = “Strongly Disagree” 2 = “Disagree” 3 = “Neutral” 4 = “Agree” 5 = “Strongly Agree”</p>
<p>Q29</p>	<p>“Please respond to the following items. Be honest—there are no right or wrong answers!”</p> <p>Q29_1 = “New ideas and projects sometimes distract me from previous ones.” Q29_2 = “Setbacks don’t discourage me.” Q29_3 = “I have been obsessed with a certain idea or project for a short time but later lost interest.” Q29_4 = “I am a hard worker.” Q29_5 = “I often set a goal but later choose to pursue a different one.” Q29_6 = “I have difficulty maintaining my focus on projects that take more than a few months to complete.” Q29_7 = “I finish whatever I begin.” Q29_8 = “I am diligent.”</p>	<p>blank = no response or skipped 1 = “Not like me at all” 2 = “Not much like me” 3 = “Somewhat like me” 4 = “Mostly like me” 5 = “Very much like me”</p>

Section Intro	<p>“The questions on this page deal with topics that may be difficult to think about. If you feel upset or distressed, you may wish to take a break and come back to the survey later. The link at the bottom of the page will take you to a list of resources you can access if you would like help dealing with any feelings that come up. You may always skip any question you do not want to answer.</p> <p>The following questions ask about difficult emotional experiences you or others you know may have had. This information will allow us to better understand problems students may face and may also help others in the future.”</p>	[Item column will be blank]
Q30	<p>“During the past 12 months, did you have any thoughts similar to the following? (Select all that apply.)”</p> <p>Q30_1 = “This is all just too much.” Q30_2 = “I wish this would all end.” Q30_3 = “I have to escape.” Q30_4 = “I wish I were dead.” Q30_5 = “I want to kill myself.” Q30_6 = “I might kill myself.” Q30_7 = “I will kill myself.”</p>	<p>blank = no response or skipped 1 = “Yes” 2 = “No”</p>
Q31	<p>“During the past 12 months, have you seriously considered attempting suicide?”</p>	<p>blank = no response or skipped 1 = “Yes” 2 = “No”</p>
Q32	<p>“During the past 12 months, did you attempt suicide?”</p>	<p>blank = no response or skipped 1 = “Yes” 2 = “No”</p>
Q33	<p>“How many suicide attempts did you make in the last 12 months?” [Q32 = 1]</p>	<p>blank = no response or skipped 1 = “1” 2 = “2” 3 = “3” 4 = “4” 5 = “5 or more”</p>

Section Intro	<p>“The questions on this page deal with topics that may be difficult to think about. If you feel upset or distressed, you may wish to take a break and come back to the survey later. The link at the bottom of the page will take you to a list of resources you can access if you would like help dealing with any feelings that come up.</p> <p>If you have reason to believe a minor is currently experiencing abuse of any kind, we encourage you to report this abuse; the link at the bottom of the page includes resources that can help you do this.</p> <p>Keep in mind you may always skip any question you do not want to answer.</p> <p>Following are some questions about events that happened during your childhood. This information will allow us to better understand problems that may occur early in life, and it may help others in the future.</p> <p>All questions refer to the time period before you were 18 years of age. Now, looking back before you were 18 years of age—</p>	[Item column will be blank]
Q34	“Did you live with anyone who was depressed, mentally ill, or suicidal?”	blank = no response or skipped 1 = “Yes” 2 = “No” 3 = “Don’t know/Not sure”
Q35	“Did you live with anyone who was a problem drinker or alcoholic?”	blank = no response or skipped 1 = “Yes” 2 = “No” 3 = “Don’t know/Not sure”
Q36	“Did you live with anyone who used illegal street drugs or who abused prescription medications?”	blank = no response or skipped 1 = “Yes” 2 = “No” 3 = “Don’t know/Not sure”
Q37	“Did you live with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility?”	blank = no response or skipped 1 = “Yes” 2 = “No” 3 = “Don’t know/Not sure”
Q38	“Were your parents divorced or separated?”	blank = no response or skipped 1 = “Yes” 2 = “No” 3 = “Parents never married” 4 = “Don’t know/Not sure”

Q39	“How often did your parents or adults in your home ever slap, hit, kick, punch, or beat each other up?”	blank = no response or skipped 1 = “Never” 2 = “Once” 3 = “More than once”
Q40	“Before age 18, how often did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way? Do not include spanking. Would you say—”	blank = no response or skipped 1 = “Never” 2 = “Once” 3 = “More than once”
Q41	“How often did a parent or adult in your home ever swear at you, insult you, or put you down?”	blank = no response or skipped 1 = “Never” 2 = “Once” 3 = “More than once”
Q42	“How often did anyone at least 5 years older than you, or an adult, ever touch you sexually?”	blank = no response or skipped 1 = “Never” 2 = “Once” 3 = “More than once”
Q43	“How often did anyone at least 5 years older than you, or an adult, try to make you touch them sexually?”	blank = no response or skipped 1 = “Never” 2 = “Once” 3 = “More than once”
Q44	“How often did anyone at least 5 years older than you, or an adult, force you to have sex?”	blank = no response or skipped 1 = “Never” 2 = “Once” 3 = “More than once”

<p>Q45</p>	<p>“Please take a moment to think about what makes your life and existence feel important and significant to you. Then respond to the following statements as truthfully and accurately as you can, remembering that these are very subjective questions and that there are no right or wrong answers. Please answer according to the scale below.”</p> <p>Q45_1 = “I understand my life’s meaning.” Q45_2 = “I am looking for something that makes my life feel meaningful.” Q45_3 = “I am always looking to find my life’s purpose.” Q45_4 = “My life has a clear sense of purpose.” Q45_5 = “I have a good sense of what makes my life meaningful.” Q45_6 = “I have discovered a satisfying life purpose.” Q45_7 = “I am always searching for something that makes my life feel significant.” Q45_8 = “I am seeking a purpose or mission for my life.” Q45_9 = “My life has no clear purpose.” Q45_10 = “I am searching for meaning in my life.”</p>	<p>blank = no response or skipped 1 = “Absolutely Untrue” 2 = “Mostly Untrue” 3 = “Somewhat Untrue” 4 = “Can’t Say True or False” 5 = “Somewhat True” 6 = “Mostly True” 7 = “Absolutely True”</p>
<p>Q46</p>	<p>“The following items are designed to measure attitudes people have toward themselves, their performance, and toward others. There are no right or wrong answers. Please respond to all of the items. Use your first impression and do not spend too much time on individual items.</p> <p>Respond to each of the items using the scale below to describe your degree of agreement with each item.”</p> <p>Q46_1 = “I have high expectations of myself.” Q46_2 = “Doing my best never seems to be enough.” Q46_3 = “I set very high standards for myself.” Q46_4 = “My performance rarely measures up to my standards.” Q46_5 = “I expect the best from myself.” Q46_6 = “I am hardly ever satisfied with my performance.” Q46_7 = “I have a strong need to strive for excellence.” Q46_8 = “I often feel disappointment after completing a task because I know I could have done better.”</p>	<p>blank = no response or skipped 1 = “Strongly Disagree” 2 = “Disagree” 3 = “Somewhat Disagree” 4 = “Neutral” 5 = “Somewhat Agree” 6 = “Agree” 7 = “Strongly Agree”</p>

Section Intro	“Below is a series of questions relating to various aspects of your life. Each question has seven possible answers. Please mark the number that expresses your answer, with numbers 1 and 7 being the extreme answers. If the words under 1 are right for you, select 1; if the words under 7 are right for you, select 7. If you feel differently, select the number which best expresses your feeling. Please give only one answer to each question.”	[Item column will be blank]
Q47	“Do you have the feeling that you don’t really care about what goes on around you?”	blank = no response or skipped 1 = “Very seldom or never” 2 3 4 5 6 7 = “Very often”
Q48	“Has it happened in the past that you were surprised by the behavior of people whom you thought you knew well?”	blank = no response or skipped 1 = “Never Happened” 2 3 4 5 6 7 = “Always Happened”
Q49	“Has it happened that people whom you counted on disappointed you?”	blank = no response or skipped 1 = “Never Happened” 2 3 4 5 6 7 = “Always Happened”
Q50	“Until now your life has had”	blank = no response or skipped 1 = “No clear goals or purpose at all” 2 3 4 5 6 7 = “Very clear goals and purpose”
Q51	“Do you have the feeling that you’re being treated unfairly?”	blank = no response or skipped 1 = “Very seldom or never” 2 3 4 5 6

		7 = "Very often"
Q52	"Do you have the feeling that you are in an unfamiliar situation and don't know what to do?"	blank = no response or skipped 1 = "Very seldom or never" 2 3 4 5 6 7 = "Very often"
Q53	"Doing the things you do every day is"	blank = no response or skipped 1 = "A source of pain and boredom" 2 3 4 5 6 7 = "A source of deep pleasure and satisfaction"
Q54	"Do you have very mixed-up feelings and ideas?"	blank = no response or skipped 1 = "Very seldom or never" 2 3 4 5 6 7 = "Very often"
Q55	"Does it happen that you have feelings inside you would rather not feel?"	blank = no response or skipped 1 = "Very seldom or never" 2 3 4 5 6 7 = "Very often"
Q56	"Many people--even those with a strong character--sometimes feel unlucky in certain situations. How often have you felt this way in the past?"	blank = no response or skipped 1 = "Never" 2 3 4 5 6 7 = "Very often"

Q57	“When something happened, have you generally found that”	blank = no response or skipped 1 = “You overestimated or underestimated its importance” 2 3 4 5 6 7 = “You saw things in the right proportion”
Q58	“How often do you have the feeling that there’s little meaning in the things you do in your daily life?”	blank = no response or skipped 1 = “Very seldom or never” 2 3 4 5 6 7 = “Very often”
Q59	“How often do you have feelings that you’re not sure you can keep under control?”	blank = no response or skipped 1 = “Very seldom or never” 2 3 4 5 6 7 = “Very often”

Q60	<p>“Please answer the following questions are about how you have been feeling during the past month. Select the option that best represents how often you have experienced or felt the following. During the past month, how often did you feel...”</p> <p>Q60_1 = “happy?”</p> <p>Q60_2 = “interested in life?”</p> <p>Q60_3 = “satisfied with life?”</p> <p>Q60_4 = “that you had something important to contribute to society?”</p> <p>Q60_5 = “that you belonged to a community (like a social group, or your neighborhood)?”</p> <p>Q60_6 = “that our society is a good place, or is becoming a better place, for all people?”</p> <p>Q60_7 = “that people are basically good?”</p> <p>Q60_8 = “that the way our society works makes sense to you?”</p> <p>Q60_9 = “that you liked most parts of your personality?”</p> <p>Q60_10 = “good at managing the responsibilities of your daily life?”</p> <p>Q60_11 = “that you had warm and trusting relationships with others?”</p> <p>Q60_12 = “that you had experiences that challenged you to grow and become a better person?”</p> <p>Q60_13 = “confident to think or express your own ideas and opinions?”</p> <p>Q60_14 = “that your life has a sense of direction or meaning to it?”</p>	<p>blank = no response or skipped</p> <p>1 = “Never”</p> <p>2 = “Once or Twice”</p> <p>3 = “About Once a Week”</p> <p>4 = “About 2 or 3 Times a Week”</p> <p>5 = “Almost Everyday”</p> <p>6 = “Everyday”</p>
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<p>Q61</p>	<p>“The questions on this page deal with topics that may be difficult to think about. If you feel upset or distressed, you may wish to take a break and come back to the survey later. The link at the bottom of the page will take you to a list of resources you can access if you would like help dealing with any feelings that come up. You may always skip any question you do not want to answer.</p> <p>The following questions ask you to think about yourself and other people. Please respond to each question by using your own current beliefs and experiences, NOT what you think is true in general, or what might be true for other people. Please base your responses on how you've been feeling recently. Use the rating scale to find the number that best matches how you feel and select that number. There are no right or wrong answers: we are interested in what <i>you</i> think and feel.”</p> <p>Q61_1 = “These days the people in my life would be better off if I were gone.”</p> <p>Q61_2 = “These days the people in my life would be happier without me.”</p> <p>Q61_3 = “These days I think I am a burden on society.”</p> <p>Q61_4 = “These days I think my death would be a relief to the people in my life.”</p> <p>Q61_5 = “These days I think the people in my life wish they could be rid of me.”</p> <p>Q61_6 = “These days I think I make things worse for the people in my life.”</p>	<p>blank = no response or skipped</p> <p>1 = “Not at all true for me”</p> <p>2</p> <p>3</p> <p>4 = “Somewhat true for me”</p> <p>5</p> <p>6</p> <p>7 = “Very true for me”</p>
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Q62	<p>“Choose the answer that matches how much you agree or disagree with each of the following statements.”</p> <p>Q62_1 = “I feel disconnected from the world around me.” Q62_2 = “Even around people I know, I don't feel that I really belong.” Q62_3 = “I feel so distant from people.” Q62_4 = “I have no sense of togetherness with my peers.” Q62_5 = “I don't feel related to anyone.” Q62_6 = “I catch myself losing all sense of connectedness with society.” Q62_7 = “Even among my friends, there is no sense of brother/sisterhood.” Q62_8 = “I don't feel I participate with anyone or any group.”</p>	<p>blank = no response or skipped 1 = “Strongly Disagree” 2 = “Disagree” 3 = “Somewhat Disagree” 4 = “Somewhat Agree” 5 = “Agree” 6 = “Strongly Agree”</p>
Q63	<p>“When things aren't going well for you, or when you're having problems, how certain are you that you can do the following?”</p> <p>Q63_1 = “Break an upsetting problem down into smaller parts.” Q63_2 = “Sort out what can be changed and what cannot be changed.” Q63_3 = “Make a plan of action and follow it when confronted with a problem.” Q63_4 = “Leave options open when things get stressful.” Q63_5 = “Think about one part of the problem at a time.” Q63_6 = “Find solutions to your most difficult problems.” Q63_7 = “Make unpleasant thoughts go away.” Q63_8 = “Take your mind off unpleasant thoughts.” Q63_9 = “Stop yourself from being upset by unpleasant thoughts.” Q63_10 = “Keep from feeling sad.” Q63_11 = “Get friends to help you with the things you need.” Q63_12 = “Get emotional support from friends and family.” Q63_13 = “Make new friends.”</p>	<p>blank = no response or skipped 1 = “cannot do at all” 2 3 4 = “moderately certain can do” 5 6 7 = “certain can do”</p>

Appendix F

Study Items Interclass Correlations

Item	ICC
dsc1	0.0049
dsc2	0.0030
dsc3	0.0041
dsc4	0.0038
dsc5	0.0027
dsc6	0.0046
dsc7	0.0017

think_suicide	0.0043
attempt_suicide	0.0016
times_attempt	0.1747

aces1	0.0053
aces2	0.0069
aces3	0.0056
aces4	0.0070
aces5	0.0160
aces6	0.0062
aces7	0.0103
aces8	0.0049
aces9	0.0075
aces10	0.0068
aces11	0.0026

soc1	0.0079
soc2	0.0066
soc3	0.0078
soc4	0.0065
soc5	0.0038
soc6	0.0062
soc7	0.0022
soc8	0.0079
soc9	0.0053
soc10	0.0037
soc11	0.0026
soc12	0.0041
soc13	0.0051

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